Southwestern AVIATION

MAY 1935

THIS ISSUE

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20

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THE COVER:

Welcoming the new 165-foot Coast Guard Patrol Boat PANDORA to her station at Miami, Florida, the Douglas RD 4 Amphibian SIRIUS (center) and two General Aviation Flying Lifeboats ACAMAR and ARCTURUS epitomize the co-ordination of water and air craft.

It is only recently that funds have become available for development of Coast Guard aviation beyond the experimental stage. There is now in progress a plan of development that will eventually establish a chain of Coast Guard Air Stations, capable of aerial rescue and enforcement work, along the whole coast line of the United States.

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Editorials and Comments

The Vinson Act

ONE of the most serious contributing causes of fear in American industry is undoubtedly the threatening cloud of governmental competition with private commercial enterprise, whether it be in the production of power, the control of agricultural products or the manufacture of airplanes. Hand in hand with the program to regulate and compete with industry is a vigorous campaign for the limitation of profits; and although a great deal of housecleaning is perhaps necessary in many phases of national business life, we are not so sure of the efficacy and the need for some particular measures.

Aviation has due cause for new worry that must be added to the vicissitudes of an already much harassed industry. We refer to certain clauses of the Vinson Act (Public 135, 73rd Congress, H. R. 6604). This act contains two provisions that the Congress should either change or wipe out completely. One is the so-called 10% manufacturing clause which requires that 10% of all equipment provided for in any annual appropriation be built in Government owned or operated plants. The second provision limits the profit on any one contract to 10%. Not only does the Government enter the aviation manufacturing business, but also requires that upon the completion of any contract in excess of $10,000, the contracting manufacturer must turn over to the Treasury Department all profits in excess of 10%.

Perhaps the most serious threat is contained in the first provision. An executive order requires the Navy to build 10% of their aircraft in Government owned or operated plants. Some two million dollars are being spent to equip and enlarge the Naval Aircraft Factory at Philadelphia. Now, the Navy elects to build all of their training equipment.

It is a well known and widely admitted fact that it costs anywhere from 25% to 50% and sometimes 75% more to build warships in Navy yards than it does to build them under private contracts. It is logical to believe that the same would follow in the case of military aircraft manufacture. And it is also logical to believe that a good chance exists for the Government to go still farther and extend their manufacturing interests beyond the construction of Naval training equipment.

As regards the 10% profit limitation clause, we cannot deny that 10% is a fair return on any enterprise or forget that the Government stands the cost of development work in many instances. But the fact remains, if the Government contracts were continuous and engineering development work was not so important as it is in the aircraft industry, the 10% profit limitation clause would not be so vicious. Unfortunately Government contracts are not concurrent and engineering development work must go on month after month whether or not contracts are on the books. Therefore, the profit limitation clause should take into account the all-important time element and insure a reasonable profit over a specified time. Can the United States expect the development and production of superior fighting craft when the profit motive is absent? Do the people of the nation trust or desire the Government to design, develop and produce the military aircraft of the future not only at a threatened increased cost but with no assurance of maintaining the standards that have already been established by competitive, private commercial enterprise?

In the event of war, there is time enough to abandon the profit motive by placing the military equipment manufacturers on the same basis with the military pilot or the doughboy in the trenches. If it's profit that leads to war, then profits during peace times only would tend to guarantee the perpetuation of peace.

And so the Vinson Act, in its unequitable clauses, would not only limit profit during peace, but in so doing would discourage the engineering and development work that has brought United States supremacy in the production of every type of aircraft. It is therefore incumbent on all those interested in the growth of American aviation and the maintenance of an effective national defense structure to exert every power and effort to have Congress immediately amend the two particularly destructive features of the Vinson Act.

Out of the Four Billion

AMERICA is looking for worthwhile projects. It is certainly just as much a function of the state and federal governments to furnish facilities for safe air travel as it is to furnish the same for water and land. And now that the unprecedented work relief measure which provides the staggering sum of four billion dollars has been written into law, do we not see an opportunity for the construction of more facilities for airmen?

The short day of CWA appropriations helped materially, but there is other development work to be done, especially in the construction of small but frequent landing fields, primarily for the private operator. We have seen hundreds of thousands of dollars foolishly expended on white elephant airports near the large centers of population, but we have chalked these mistakes off as taking the bad with the good, and it cannot be denied that although monies were wasted in this regard, hundreds of thousands of dollars found their way to the construction of facilities and necessary improvements. But the money was directed primarily into the same fields and that type work inaugurated and developed during or before the boom. Very little found its way into new projects.

A national system of small landing fields could be constructed next to and maintained in conjunction with certain national and state highways over rough or

wooded terrain between towns and cities in the higher brackets of population, or over the more established airways. No single factor would contribute so much to the safety of private flight than the facility to fly from one city to another with small fields so close together that one might glide safely into either the field ahead or the field just behind. With 2,000 feet altitude taken as an average for ordinary private flight operations, the project would mean a spacing of the fields every four or five miles. The fields can be small—just a few times the wing span in width and one-third to one-half mile long. It has been estimated that such fields could be built in connection with main highways at about 5% of the cost of the highway, and further, could be economically maintained by highway personnel or a special division of state highway departments. The project would be largely a matter of labor, thereby an attractive one for the work relief program. Far-sighted states could supply a portion of the money for construction and the federal government could supply its proportionate share.

When such fields are available, especially where natural landing facilities are not present as over rough or wooded terrain, the utility of conventional airplanes for the private owner will be greatly increased and the hazards of flying decreased to such an extent that all wise travelers will go by air rather than take chances on the roads. The project would definitely effect an increase in the sale of airplanes and contribute to the long-sought beneficial circle which would give us lower priced aircraft, resulting in still larger volume with further price reductions until air travel would be not only the most economical but the most common mode of private transportation.

Such a development as encompassed in a system of small and accessible landing fields is inevitable to come in the future. But would it not be wise and practical, now that the money is available for honest labor, to begin the construction of facilities that will not only aid the present group of licensed airmen in lessening one of the greatest hazards to flight over certain portions of our nation, but also lay one of the fundamental foundation stones for the long expected national expansion of private aeronautics?

Border Patrol

THE Coast Guard Air Patrol Detachment based at San Antonio is intended primarily to guard against aerial smuggling from Mexico. Its sector is from Brownsville to El Paso, and while such aerial smuggling was greatly decreased by the repeal of prohibition, it has recently begun to increase. Although no great amount of liquor is being smuggled, the traffic in narcotics and arms has increased considerably. The detachment is seriously handicapped, and the ancient equipment they must use to track down the smugglers is a travesty on modern law enforcement methods.

In addition to enforcement work, the Coast Guard planes stand ready in any emergency to assist in medical or relief work. The handling of effete airplanes is just as keenly felt in this latter regard as in border patrol.

It appears that the detachment cannot have new equipment until they catch and prove the prevalence of smuggling operations, and they cannot pursue or capture the more or less well financed "operators" unless they have more modern equipment—a vicious circle indeed

There is only one remedy for the regrettable situation. The solution is found in the immediate purchase and designation of proper flight equipment for border patrol service, not only in the interests of law enforcement and preparation for emergencies, but also in bringing up to date this important phase of Coast Guard Aviation.

Good Work

ONE of the most progressive steps forward in the dissemination of purely technical aeronautical information that has come into recent prominence is the two year old *Journal of the Aeronautical Sciences*, a bi-monthly magazine published by the Institute of the Aeronautical Sciences.

Edited by able Jerome Clark Hunsaker, the *Journal* is devoted to papers on experimental, theoretical, and applied science as employed in aeronautics. That a fertile field exists for such a publication is not denied. That there is a very evident need for the publication has long been recognized. That it will grow, prosper and continue to find support from the industry that it materially benefits is logically expected.

Finally, it is genuinely hoped that it will find its way into the hands of all those technically inclined Americans, young and old, who believe rightly that the future development of aircraft depends on scientific research and engineering experiment applied to design, to the end that as a success within itself, the *Journal's* greatest triumph will lie in its valuable contributions to the arts of the air.

* * * *

AN INDIVIDUAL in Washington who has done good work, silently, conscientiously, yet practically unnoticed, is Louis R. Inwood, who, during the past year, actively represented the Independent Aviation Operators of America.

Handicapped by the lack of support from a phase of the industry that apparently fails to realize the importance of concerted efforts, hindered by the inevitable clashing and conflict of interests, Inwood has not only aided in the campaign to bring about harmony between the federal government and aeronautics, but has definitely assisted in killing vicious legislation. Certain bills were introduced that never received much publicity. Many of the proposals packed veritable dynamite. But Inwood was on his toes.

The Aeronautical Chamber of Commerce has absorbed the work of the I. A. O., and it is hoped that the small operators will wake up under the new banner at least for their own good, and support the new but important division of the A. C. C.

The Conquest of Weather

. . . . . an expert meteorolgist of American Airlines calculates the value and importance of modern meteorolgy to commercial and private flight, considers the air mass theory, translates the daily weather map.

By G. E. Engleman

IT IS indeed significant that Professor C. G. Rossby and Dr. H. C. Willett received the Sylvanus Albert Reed Award this year "for a notable contribution to the aeronautical sciences resulting from experimental or theoretical investigations, the beneficial influence of which on the development of practical aeronautics is apparent." The Award was for the year 1934 and was designated "for practical application of the Polar Front Theory to American practice in aerology and weather forecasting."

Although the value and importance of meteorology and weather forecasting gradually impress all aeronauts and people who travel by air, the average person gives little thought to the detailed study of weather that now involves every scheduled flight by all major air transport companies who are positively mastering the art of whipping the weather. Meteorology very definitely finds its climax in intensive study and predominant practical application in the field of modern air transport.

Meteorology in Commercial Aviation

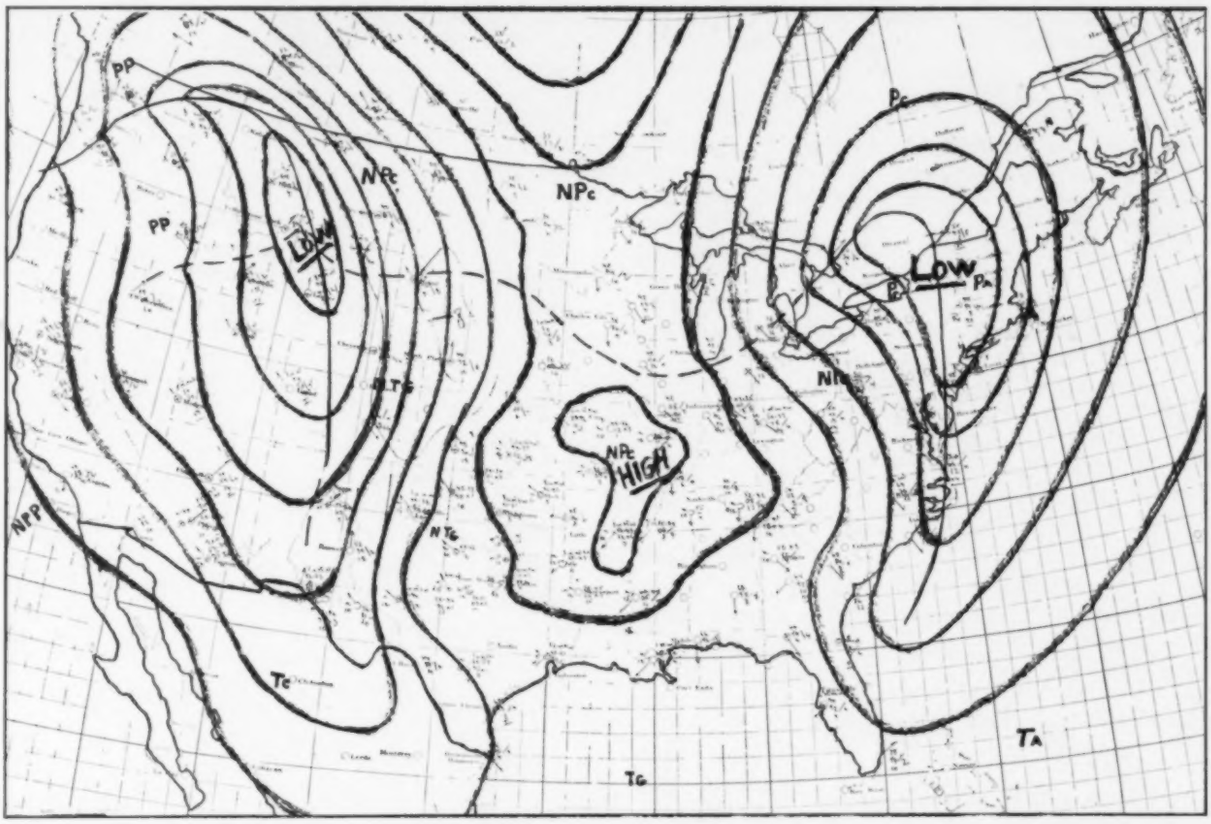
Suppose we briefly summarize the meteorological system of American Airlines as an example. At Chicago, Newark and Fort Worth, which are all control points on the System, there are enough meteorologists stationed to guarantee at least one man on duty during the entire twenty-four hours of the day. At these control points, the nation is broken up into sectors, with the meteorologist in each sector constantly studying the weather surrounding and within his particular territory. These men have had long experience as professional meteorologists and have spent years in the study and use of the modern theory of weather forecasting known as the Air Mass Analysis, or Polar Front Theory mentioned above. It is the duty of these men to furnish all technical advice as to weather conditions on all the company's routes.

In addition, the United States Weather Bureau collects weather reports every six hours from the entire United States, Canada, Alaska, Mexico, and the Atlantic and Pacific oceans. These complete reports are grouped, sent out by radio and telegraph, and are available to all who care to use the service. The transport company meteorologist enters them immediately on a blank map of the United States. From these reports a weather map is developed. All bad weather and adverse conditions which portend bad weather are located. The meteorologist then determines the movement and trend, following every development in the weather hour by hour and day to day. After determining the probable weather for the next eight to twelve hours, he sends it by company radio forecasts to passenger agents in his division, advising possible operations of schedules. Then, as prospective passengers call in for reservations, accurate information may be disseminated six to eight hours before departure, thereby minimizing inconvenience for the air traveler.

When we look behind the scenes at the terminal before the airliner departs, we find the pilot and copilots arriving several hours before departure time. After thoroughly inspecting and checking his ship, he goes to the meteorological office where he receives a written forecast from the man on duty. The forecast includes the height of clouds along the route, visibility in miles, temperatures at various altitudes, types and degrees of precipitation (if any), the direction and velocity of winds aloft, and suggestions as to the best altitude to fly in order to afford the most comfortable trip for the passengers and still reach all destinations on scheduled time.

After making a study of his forecast, the pilot and meteorologist turn to the weather maps for at least two days previous, and from these maps they advance step by step through a logical chain of events until they arrive at the current map. Thus the pilot is familiarized with all conditions that produce the weather over his route.

Next comes a discussion of reasons why the meteorologist arrived at the conclusions contained in his forecast. After a clear and intelligent picture of existing conditions and anticipated future developments, a study of the Department of Commerce Weather Reports ensues. These reports come in hourly and contain data on the altitude of the clouds, general conditions of the sky, visibility in miles, temperature in dewpoint (humidity), wind direction and velocity, and the barometric pressure readings. These reports are carefully compared with the already constructed forecast. Since meteorologists are human beings, they sometimes err in their predictions. If the reports do not agree with the particular conditions, another analysis is made to determine wherein lies the error. During all this procedure, there is present a third individual, concerning whom few air voyagers know little and seldom hear about. He is the flight superintendent. His is the responsibility of determining whether the flight shall be made. He is the man with a thorough knowledge of flying, of what the airplane will do under all sorts of conditions, and, in addition a practical meteorologist of high calibre. With the professional meteorologist as technical advisor, the flight superintendent studies all weather conditions in his sector and combines the forecast with his knowledge gained from years of handling passenger flights. When the weather is doubtful the pilot, meteorologist and flight superintendent go over the facts concerning it, practically with



PUTTING THE POLAR FRONT THEORY TO PRACTICE

Meteorological data is plotted on a blank map of the North American Continent to produce the daily weather map. The two principal types of air masses, originating in tropical and polar regions, battle for supremacy along the "front," an imaginary line between the masses. Barometric pressures, temperatures, wind velocities and direction, humidity and other factors, when combined on the map, afford the invaluable weather data governing flight activity.

a fine tooth comb, before arriving at a decision advising flight.

If the weather is considered too bad, the trip is cancelled. A study is then immediately made to determine at what time the weather will permit the schedule. The passengers are advised and if it is impossible for them to wait, they are given the next best possible dispatch.

Many air passengers might well bear in mind that when a trip is perchance cancelled, it is not through some perverse whim of the company but rather an honest concern for one's welfare. They should also keep in mind when they board a plane, that every member of the crew and everyone on the ground concerned with the flight, honestly believes with all their heart that the flight is absolutely safe in every degree, and behind this belief are years of knowledge, experience and training.

After the take-off, the pilot communicates every thirty minutes with each successive company radio station spaced at close intervals over the route. To the operator, the pilot gives a complete report of his existing weather. This information is relayed to the meteorologist, who again checks with his forecast and keeps a wary eye for any disagreement. After giving his weather report, the pilot then receives from the radio station a report from the next weather ahead, and so on along the route. Upon reaching his scheduled destination, the pilot immediately fills in a form, stating the exact weather conditions which he encountered. This is returned to the office of the control point, where the meteorologist making the forecast receives and compares it with the original forecast. If any discrepancies exist between the two, he turns back to the maps from which the forecast was derived, having now the knowledge of what actually took place; the conditions are analyzed and if the original analysis was faulty it is corrected and carefully noted to insure against recurrence.

It appears easy for many individuals to harbor an opinion that meteorology is a dry and uninteresting subject; but on the contrary anyone who has dealt with the science in any degree will vouch for the fact that it is one of the most fascinating studies known to man.

Meteorology in Private Aeronautics

Probably, a very few realize that great strides have been made in predicting weather along with the other recent aeronautical advancements. This improvement, of course, means many millions of dollars saved for the public through the good work of the United States Weather Bureau and private meteorologists. All this is due to the general acceptance of the air mass analysis theory of weather forecasting, often referred to as the Polar Front Theory.

This theory is far from new, but it has only been during the last few years that it has found practical application and proved to be, if not the final solution to our problem of determining and predicting weather

sufficiently in advance, at least the greatest aid now known, giving profitable results beyond those thought possible not many years ago. Hence with this system generally in use by all competent meteorologists, it is becoming necessary for the private flyer as well as the commercial air transport pilot to have a working knowledge and familiarity with the theory and terminology used in order to intelligently study and discuss probable weather. It is quite obvious that the pilot should understand why the meteorologist forms his opinions, rather than blind acceptance involving all they are told. As most weathermen will testify, the man or woman who flys is usually the type of individual with enough intellectual and practical curiosity to want to know why. Therefore the moot question is asked: Why not learn something of the practical side of forecasting and surprise your favorite weatherman the next time you look at his map?

Possibly the private flyer who flys for sport will ask why he should study weather, since he will seldom attempt to fly in bad weather. There lies the crux of the matter! A knowledge of meteorology will prevent flight when the weather is going to get tough. Also, suppose John Citizen flys his own ship down country to visit a friend over the week-end. On such a trip would it not be invaluable to figure approximate air time, drift, etc.? Such information is available only with a knowledge of how the winds aloft are blowing.

At many small airports, one will probably find a map printed from the Department of Commerce teletype machine—possibly not even that; but at least a few intermediate weather reports and a few barometric pressure readings are available. With this information a rough opinion as to the probable winds aloft can be gained and one can manage to get to his destination within a reasonable, predetermined elapsed time.

For the person who travels even occasionally by air, the trip would prove far more interesting if the weather held a tangible meaning and significance. Of course a complete discussion of the subject of weather forecasting by any method, including air mass analysis, would cover volumes were the texts available. To do the work of a professional meteorologist, a vast amount of technical knowledge is necessary. Higher mathematics, physics, meteorological principles and data, combined with practical knowledge of the effect of terrain upon weather movements, are all necessary elements. But it is possible for anyone with the information to do considerable weather forecasting from a general practical knowledge, a little theory and with a smattering of indirect meteorology thrown in.

Polar Front Theory

Let us conclude with a brief consideration of the air mass analysis. The theory in general holds that over the globe there are large masses of air ranging from a few thousand square miles to many thousand square miles in area. These air masses lie dormant in certain portions of the world until they take on characteristics of their particular area in regards to temperature, specific humidity, and other natural factors. From time to time, portions of these air masses break off from the parent body, due to the movement of barometric pressure areas (highs and lows as they are commonly termed because of their principle characteristic of high or low barometer readings at their centers). These air masses then move across the oceans and continents until they lose their original characteristics, dissipate, and become another type of air mass. These masses have boundaries regardless of how indefinite the boundaries might appear. Since their boundaries are known positively to exist, it follows that they must come in contact with other air masses. It is along these boundaries that most of the bad weather develops for large scale horizontal movements bring together air masses of highly different points of origin, each having contrasting, sharp characteristics, with the main point of contrast being found in temperature. There are also contrasts in humidity, wind direction and velocity, cloud formations and pressure changes. The imaginary line between these masses is technically referred to as the "front," so called because on the boundary two opposing air masses do battle for supremacy.

Of these air masses, there are two principal types, each having variations which are of utmost importance. These types are:

1. Warm air masses originating in tropical regions.
   (a) Tropical Atlantic, labeled on the map as "Ta."
   (b) Tropical Pacific, labeled on the map as "Tpa."
   (c) Tropical Continental, labeled on the map as "Tc."
   (d) Tropical Gulf, labeled on the map as "Tg."
   (The second word indicates the point of origin to a finer degree. Those air masses originating over water are, of course, highly saturated with moisture; those over land being considerably less moist.)
2. Cold, or Polar Air Masses which originate in the Arctic Regions.
   (a) Polar Pacific, labeled on the map as "Pp."
   (b) Polar Atlantic, labeled on the map as "Pa."
   (c) Polar Continental, labeled on the map as "Pc."

Note on the accompanying weather map the various points where the above abbreviations occur. Many of these air mass abbreviations are preceded by the letter "N," which informs us that this particplar air mass is in a transitional state. In other words, it is losing some of its original characteristics and is being modified by the factors of the terrain over which it is located.

It follows that a transitional air mass will not be in such sharp contrast to its opposing mass, hence the weather conditions are not so violent along the line of front, and in some cases, the front is dissipating, although quite often these fronts are reinforced from other sources and bad weather again takes place. There are also different types of fronts. These types are cold, warm and occluded. The heavy black lines on the map are the fronts causing the bad weather on that particular day. The broken lines indicate fronts which are above the surface. It would involve too lengthy a discussion to describe the structure of fronts and how they move, generate, etc., but suffice it to say that on any weather map the really dangerous flying weather will occur along the fronts with the exception of heat thunderstorms and radiation fog, which oftentimes have an indirect relation to a frontal action.

Subsequent articles by the same author will include considerations of indirect meteorology as a basis for study and information in non-technical aerology.

Supplying Manpower

. . . . . there is room in the industry for the well trained and dependable, no demand for the partially trained or irresponsible . . . . and every index points to the fact that the depression is over as far as aviation is concerned.

By Oliver L. Parks

I RIDE repeatedly on the airways of this country. Almost without exception every seat is taken, and if not for the entire journey, at least for a portion of it. I believe this is one of the foremost indications of growing prosperity, and I am glad to note a decided increase in express and airmail poundage as set out in the monthly reports of the Bureau of Air Commerce.

In fact, I believe the depression is over so far as the aviation industry is concerned. During the past several weeks I have traveled extensively throughout the United States, contacting either the president, the vice president, or the general manager of nineteen leading American airline operators and aircraft manufacturers. Without exception I have found every one of these executives optimistic with reference to the future of our industry and in almost every case I found an expansion program either under way or about to be put into effect.

Most of these executives have co-operated with Parks Air College the last several years in making recommendations as to exactly what they would like and their requirements for training and manpower.

One requirement that seems to be universal is that a man in aviation should have a college education. For this reason about three years ago we started out to see that every man attending Parks Air College did get in every respect a full college education. Our job has been extremely difficult in view of the fact that the industry is eager for men and it is necessary to train them in the shortest possible time. Therefore, vacations are entirely eliminated with the exception of two weeks at Christmas and two weeks during the summer. This allows us forty-eight full weeks in every year, and in a period of two years, or ninety-six weeks, we are turning out men who have had as many classroom hours of experience as the average student would get in four years of regular college, but all of our subjects deal, directly or indirectly, with aviation.

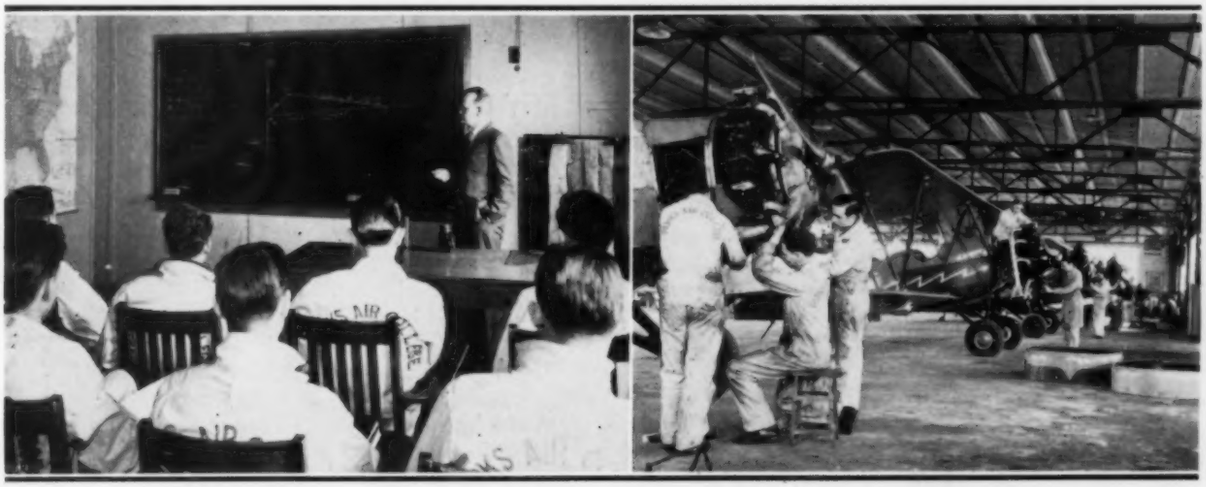
First, we teach the theory very thoroughly, which is immediately followed by the practical application. whether it be in flying, business management, aviation mechanics, or aeronautical engineering.

During the last several weeks, three of the major airlines have sent their leading executives to Parks Air College to analyze our methods, to interview the students now in school, and to present to us their employment needs for the coming months.

The requirements of any one of these three major airlines would take our entire output inasmuch as our enrollment is now only 200 and it takes two years for a student to complete his course. This permits us to supply the industry with only about 100 men per year. I feel certain that if we had 400 well qualified, well trained graduates of our executive transport, master mechanics' flight, and aeronautical engineering schools, they could all be placed within a period of four or five days with some of the very oldest and finest operating companies in the aviation industry.

Because of these very evident facts, I honestly believe that the depression is over in so far as the aviation industry is concerned. There is no better index to

(Continued on page 20)



FROM AMERICAN AIR COLLEGES COME THE MAJORITY OF AVIATION'S ADDITIONAL MANPOWER

As the industry expands month by month, so grows the demand for well-trained personnel. Higher education in aeronautics is today virtually a prerequisite to employment. Many phases of the schools' curricula are suggested by employers to better satisfy their requirements from the ranks of graduates.

A Survey of Air Transport Develoment

. . . . . a practical statistician presents an unbiased and independent study of domestic air transport, considers the field in the light of older forms of transportation, estimates future volume.

By L. W. Hoelscher

THE growth of air transport in the United States will be determined principally by five factors in addition to the general economic condition of the country. These five factors are speed, safety, dependability, convenience and comfort, and cost.

It is interesting to note that less than three years ago Paul T. David in "The American Transportation Problem," a study sponsored by the Brookings Institution, observed: "Some hold that speeds can be advanced to 175 miles an hour without increase in cost; others think a prohibitive increase in cost will occur, followed by a reaction to possibly 140 miles per hour. The latter view is held by Mr. Edward P. Warner, the editor of *Aviation*." In human progress, accomplishments tend to exceed the expectation of those most closely associated with the difficulties of the problems. Today, the cruising speed is 200 miles per hour. If no further advances in speed are made, the present speed will insure the preference of commercial travelers for air travel.

The greatest deterrent to the increase of air travel has been the consideration of safety. However, steady progress is being made as shown by all accident tables of scheduled transport flights. The general trend is definitely toward a lower passenger fatality rate, although this trend sustained a set-back in the first half of 1934, during the period that the air mail contracts were cancelled. Paul T. David, aforementioned, cites the automobile transportation passenger fatality expectancy to be one in approximately 21,000,000 miles, and the corresponding figure for railroads one in approximately 550,000,000 miles. It is improbable that air travel will ever approach rail travel in safety, but it is important to note that in three out of four of the past six-month periods, air travel was considerably safer than automobile travel. The matter of safety will not prevent the rapid growth of air transport.

As regards the third factor, air transport is not equally dependable in all parts of the United States and probably never will be because of climate and topography. In the South and Southwest moderate climate and favorable topography unite to produce flying weather which enables air transport to reach its maximum in dependability. With the advances being made in aeronautical engineering, meteorology, radio, instrument flying, and navigation there is no reason to doubt that aviation will overcome the present handicaps to flight. At the present time air lines complete 95 per cent of their scheduled mileage.

Air transport will always be limited to relatively small capacity of individual units with corresponding relatively frequent service. The convenience of frequent schedules will add to the attractiveness of air travel and assist in its rapid growth. Airports in many cities are now inconveniently far from the center of the city, but it is quite possible that there will be developed other fields closer to the business districts, which will be used as depot fields only. The use of river valleys for depot ports in many southern and southwestern cities would enable the development of these terminals at the very doorsteps of the business districts. Great strides in passenger comfort have been made in the past two years even as the achievement of heretofore undreamed-of speeds. Discomfort has been caused largely by fear and nervousness, and this state disappears rapidly with a growing familiarity with this type travel. In short, air travel will increase in comfort even as ocean travel has done.

The fifth factor is cost. The following rates per passenger mile show the downward trend in the cost of air travel since 1926:

1926	12	cents	per	passenger	mile
1927	10.6	"	"	"	"
1928	11	"	"	"	"
1929	12	"	"	"	"
1930	8.3	"	"	"	"
1931	6.7	"	"	"	"
1932	6.1	"	"	"	"
1933	6.1	"	"	"	"

At the present rates there is about 10 per cent difference between air travel fare and extra fare train plus Pullman in the North and East and about 20 per cent difference in the Southwest. With a differential in rates, air travel will appeal particularly to commercial travelers to whom the difference in time is more important than the difference in fare. On longer

trips there is a further saving in air travel in living costs. There is little doubt that with increased volume the air fare can and will be further reduced, because increased travel means heavier average loadings, lower passenger mile overhead, and reduced cost of equipment.

Growth of Air Transport

Because air transport is a relatively young form of travel, the statistics regarding its growth are limited. Seventeen years ago, May 15, 1918, the first air mail line was inaugurated. Air transport increased rapidly from 1919 to 1921 and then stood still for three years, to renew its advance in 1925. It is significant that day and night transcontinental air mail service was initiated July 1, 1924. As air speeds were low and routes were few, air mail held little advantage to its potential customers until night flight was inaugurated. Passenger transport was not started until 1926 and the companies were entirely dependent on the mail before that time.

From this point air transport advanced steadily but not spectacularly through 1927. Then in 1928 and 1929 came a rapid advance, the miles flown doubling each year to a total nearly fifteen times as great as that at the time of the first night schedule only five years previous.

The next year, 1930, was the first of the depression period and the rate of progress began at once to slow down although the advance has continued right through 1933 with the exception of mail carried. This advance was due to the technical advances made by the industry which, as stated above, has definitely removed air travel from the field of any other form of transport.

As will be shown later by statements of the depression experience of other forms of transport, this increase during the depression is an exceptional accomplishment which augurs a much more rapid rate of growth during the period following the depression. To forecast the growth during that coming period at the same rate of advance as during the past five years would be to entirely miss the significance of the singular feat of air transport in making any progress during the depression.

Growth Experience of Other Forms of Transportation

In attempting to anticipate the future of air transportation it is desirable to study the experience of other forms in order to discover the characteristics of growth and if possible to use this data as an indication of the future of air travel.

The best established and longest experienced mode of travel is that of the steam railway. The Baltimore & Ohio began its operation in 1832 and there is accordingly 100 years of experience in this type. Unfortunately, records of operation prior to 1871 are not available.

The effect of the thirteen depressions between 1853 and the present time on railroad construction is apparent and the effect on passenger mileage is even more marked. Passenger revenue fell off during the depression of 1873 and 1879 (the depression analogous to the present one) and during the period 1883 to 1886; and passenger mileage declined during the period 1894 to 1898.

It appears that railway passenger traffic has passed its peak and is on a downward cycle. It is, however, not the purpose of this study to forecast railway passenger traffic but to use the experience as a guide to the future of aviation.

By its very nature a trend curve must fall below actual experience during the period of more than average economic activity and above the experience of a depression. It is therefore apparent that the projection of the experience of a form of transportation during either a depression or a boom is not truly indicative of its future development.

The growth of the motor bus as a form of transportation is particularly interesting because it has occurred during the same period as the development of air transport. Here as in other cases the statistics of early growth are not available, although it is known that bus transportation did have its inception about 1918 in the Pacific Northwest and was in its infancy in 1920. Figures of the growth of motor bus transport are chiefly interesting because they show how rapidly one form of transportation can replace another. In 1932 bus transportation accounted for 37 per cent as many passenger miles as the railroads, thereas twelve years earlier it probably carried about 1 per cent as many. As shown by the average trip of 19.5 miles on buses, and 35.3 miles on day coaches, air transport can expect to draw little if any from the customers of these two modes of transportation.

It is from the Pullman type of traffic that air travel will draw its principal source of passengers. In the Pullman experience, a declining trend is apparent in the years 1926 to 1929 which can probably be credited to the private automobile. In fact, the increasing length of the average trip over the entire period for which statistics are available indicate that even during the period of expansion from 1922 through 1926, the private automobile was absorbing some of the shorter haul. The enormous decline during the period 1929-1933 can not be attributed primarily to the private automobile as 1930 represented the peak of automobile registration. This decline must have been caused primarily by the severe depression of that period.

The average length of trip (448 miles) on Pullman cars is noteworthy as compared with day coach and bus traffic. This is one of the factors which marks Pullman traffic as the chief field from which air transport will derive its clientele. The other factor is the ability and willingness of Pullman travelers to pay more for better and faster service.

The buses are rapidly absorbing day coach travel because of cheaper rates and more frequent service. With the return of better economic conditions luxury service will rebound rapidly, although it would appear that Pullman traffic is on the decline because of the private automobile and because of the mechanical advance of air transport.

Because air transport is tremendously faster than automobile travel, whereas Pullman speed is but slightly faster, it is probable that air transport will also draw from vehicular traffic. It is probable that in course of time air transport will reach a volume of not less

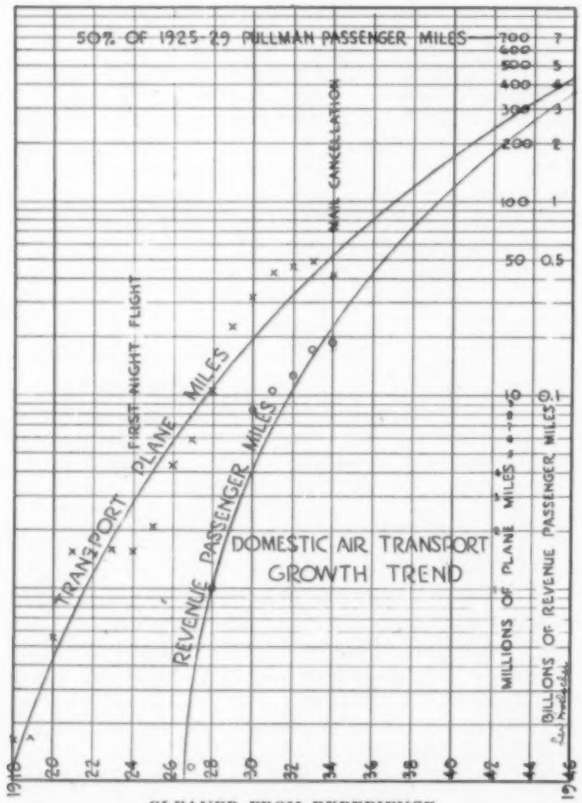
than 100 passenger miles per capita per year as compared with the present 1½ passenger miles.

Future of Air Transport

IT WOULD be illogical to assume that an absolute forecast of air traffic can be made. On the other hand, it is evident from the foregoing data that some more or less definite trend can be established.

The following general conclusion may be drawn from the experience of other forms of transportation:

1. A graph of railroad mileage in operation indicates that the trend of transportation growth follows a curve when plotted on semi-logarithmic paper.
2. Experience of railroads, buses, and the Pullman Company indicate that the rate of progress is faster than the general trend during boom periods and slower or backward during depression periods.
3. The nature of a trend curve requires that it pass below the peaks and above the valleys of actual experience.
4. The "luxury travel" riding habit as indicated by Pullman statistics exceeded 100 miles per capita per year for eight years prior to the depression.
5. Because of the nature of its customers and the average trip length the Pullman traffic is the principal source from which air transport will draw.
6. Because of its much greater speed air transport will also draw from automobile traffic, a form of transportation to which Pullman seemed to be losing customers.



GLEANED FROM EXPERIENCE

The above diagram is the attempted projection of a trend curve through the experience of domestic air transport based on the characteristics observed in railroad growth experience. The trend curve attempts to depict the average growth over a period and not the specific volume at any one time.

7. The present state of advancement of air transport in the vital matters of speed, safety, dependability, convenience, comfort, and cost are favorable to the immediate progress of air transport and there is every indication that those factors will be constantly improved.

There is one factor which has not been given specific consideration—general economic conditions. It was stated by this writer in 1931 that the present depression was a close analogy to the depression of 1873-79 and that the length of the present depression would be roughly the same. If this be true, and the further experience of 1932, '33 and '34 indicates that it is, it may be presumed that the depth of the depression has been passed and that we will definitely emerge into general activity by 1936. It short, we may expect the country to proceed in accord with its previous experience and may predict a rising trend of air travel accordingly.

Furthermore, it is believed reasonable and even conservative to assume that within twenty-five years air travel will completely absorb luxury travel and that with the rising economic standard which has been the consistent general trend of the United States, depressions notwithstanding, the air transport riding habit will be not less than 100 passenger miles per capita per year. Were it not for the probable growth of private air travel this figure would be set much higher.

The accompanying graph is an attempt to combine those general conclusions into trend curves showing the probable rate of growth of domestic air transport passenger miles and plane miles.

Curves have been projected through each of the two sets of data in an attempt to indicate the probable trend of air transport development. Factors affecting the selection of these curves were:

1. Air travel should absorb luxury travel within twenty-five years.
2. With the exception of 1934 air travel and plane miles have both shown a substantial increase during each year of the depression. The set-back during 1934 as a result of the air mail contract cancellations renders that year unsuitable for use in forecasting the trend.
3. Air transport is ripe for expansion.
4. The year 1936 will probably be out of the depression group.

According to the curves, domestic passenger miles should total approximately 1,200 million passenger miles by 1940 as compared with 175 million for 1934. By 1946 passenger miles should range around 3,600 million and by 1960 the air passenger miles should reach the 1925-29 Pullman passenger mile volume of 14 billions. It should be noted that 3,600 million passenger miles (the figure set for 1946), is but 25 per cent of the volume of pre-depression Pullman traffic.

A similar projection of the domestic transport plane miles indicates 175 million plane miles by 1940 and 440 million by 1946. These figures would mean an average loading of 7 passengers per plane in 1940 and 8.6 by 1946 as compared with 3.5 at present. The figure for 1946 would seem to be low were it not for the probable increases in air mail and express.

In conclusion, it is well to admit that inadequacy in dealing with the fundamental faults which have

(Continued on page 21)

Uncle Jim of Oklahoma

. . . . . his changing tastes have made him owner of almost every type of plane in the private owner class . . . . . his genial personality makes him a true relative and friend to hundreds in the flying fraternity.

By Jack Story

SIXTY-EIGHT years ago, about the time that Mr. Green (of the Darius Greens) was proving Barnum's theory to an unscientific, skeptical world, two proud young parents in the uncharted Indian Territory were warmly displaying to friends and neighbors a new-born son named James.

Since the literature of any era has ever had difficulty in entering the Sooner State, it is hardly to be expected that Mr. and Mrs. Brazell ever read the writings of Darius, much less did they dream that the new object of their then tender affections would some day be known as "Uncle Jim" by the men whom made Darius' vision come true.

UNCLE JIM BRAZELL
. . . he couldn't stay away from the stick.

For there is scarcely a pilot in the limitless Southwest who does not know and respect that truly lovable character of aviation, Uncle Jim Brazell. Many are the members of the flying fraternity he has helped over the rough places in their careers; many are those who have profited by his broad experience; and to those who sought his advice, always came a warm welcome. Not one was ever turned away, no matter how busy Uncle Jim might have been at the time of the call.

And he has been a very busy man for the greater portion of his life. When nine years old, Master James Brazell undertook his first job in the competitive world of money grabbers and fortune seekers. In a coal mine, following a mule-towed ore car, Master James worked long and diligently beneath the coal-bearing hills near McAlister, Oklahoma.

As he grew older, he tired of the regular vista of a mine mule's empennage and the little steel runways that formed the tracks for the coal cars. Above ground there were other and larger tracks that held a fascination for the young miner, and these elements of a new era of transportation—the period of rail expansion—caused him to desert the lantern and cap of the miner for the gloves and overalls of a brakeman. Those larger scale rails did not begin and end in the mine tunnels; they ran on and on as far as the eye could see, with great iron monsters puffing and pulling many cars as easily as old Molly Mule pulled one. The local trainmaster saw in the fast maturing young man a tolerable piece of material, capable of being worked into a good "railroader," — result: a job on the great Ft. Smith & Western Railroad, with headquarters in Wagoner, Oklahoma.

After several years of darting in between freight cars, adjusting couplings for crazy engineers who tried to include him in the hook-ups, young Brazell decided his rich experience and success in the art of chasing hobos, adequately qualified him for the job of peace officer wherein was an opportunity unapproached even remotely by his little niche in the development of rail transportation.

With this thought in mind, he collared another job dispenser and finally received the appointment of United States Marshall for Eastern Oklahoma. He wore the badge of his office with pride and honor for eight long years.

His next bold step was his entrance into the business world. The opportunity came in the form of a house-moving contract for the Rock Island Coal Company. The only way to move the houses was by ox-drawn rollers and the route was over mighty bad terrain. Moving houses in quantity even in these modern days is a profession that requires the greatest of skill and ingenuity. For Mr. Brazell, the former deputy marshall, to move a batch of dwellings over many miles of rough and slippery roads, the feat was little short of a miracle. His ingenuity was proved when, after many set-backs at the beginning of the task, he put shoes on the oxen and completed the job long before contract time!

Next came a brief spell as farmer near Fort Smith, Arkansas; but his ideas were a bit too modern and expensive; for the crops he harvested did not meet the mortgages, and anyway, he didn't like the prolonged association with oxen and mules that had so marred the aesthetic character of his former pursuits. He again changed professions.

One day, during a trip into town for one of the more or less regular visits with his banker, he learned of some government properties suitable for a lumbering venture. Disposing of his agricultural holdings, he

(Continued on page 20)

Courtesy Card for the Private Owner

. . . . something new in the creation of goodwill, a service afforded by a modern air transport company to responsible private flyers . . . . . an idea that came out of the Southwest.

By T. Park Hay

MORE emphasis is being placed today on good will than ever before in the history of commercial aviation. Air line officials responsible for public relations activities are surveying all undeveloped relationships between the air lines and those groups whose good will is desired in a program to make friends—and more friends.

When TWA was laid out between the Atlantic and Pacific it was necessary for the company to buy and equip several complete airports. Today this operator owns the land and terminal facilities at both Albuquerque and Winslow. For years past, these two airports have been visited most frequently by private owners flying back and forth across the continent. They would invariably come into one of these airports, and, if it happened to be their first visit, everything would naturally be strange to them. Practically all of them would seek information with regard to the weather, require some mechanical adjustments, or take on additional supplies of gas and oil.

As a result of these frequent visitors at these two airports, Jack Frye, president of Transcontinental & Western Air, conceived an idea. He saw where a tremendous amount of good will could be developed between the private flyers and TWA if arrangements could be made to offer the same kind of courtesies and service which the company's personnel rendered at Albuquerque and Winslow, at all other airports served by the line.

Not so many weeks ago in Mr. Frye's office in the company's model maintenance base at Kansas City, a number of letters representing a good day's work were dispatched to a list of private owners of aircraft advising them that on TWA's route between Los Angeles and Newark, the company had been required to install a number of facilities and pointing to the fact that at all airports TWA employes were permanently stationed and that the air line was desirous of assisting private operators by making facilities available to them should they make a trip over TWA's route in their own planes.

This offer advised the private owners that field managers and meteorologists would be pleased to furnish weather and pertinent information regarding trips at any time; that the field's personnel were familiar with all types of engines and had a complete knowledge of most modern airplanes. In addition to the various services and information which was available, TWA offered to supply courtesy cards as a convenience. Those holding them (or the companies for whom they are flying), will be billed monthly for supplies and services received from the air line. To make this offer genuine and in order that it would be utilized by responsible individuals who would value the courtesy and appreciate the extra services which the busy airport authorities would extend themselves to render, a form was enclosed with the letter, authorizing the private owners' representatives to pledge their credit for material, fuel, supplies, labor, or storage secured or obtained from TWA.

Included among the list of those who received TWA's offer are such private pilots as Wallace Beery, Frank Phillips, Fred Harvey, Felix duPont and Hal Roach; among the private owners in the business world are Messrs. William Randolph Hearst, Powell Crosley, Jr., and E. W. (Pop) Cleveland.

This novel proposal to assist private flight operations has been met with a more or less nation-wide approval. Many private flyers have expressed themselves as feeling that TWA has made a great contribution toward the stimulation of private flying. Others have voluntarily written in to express their appreciation of the convenience of the service and to comment on the unusual courtesy of the TWA personnel in making these private flyers feel at home at all TWA terminals.

A motion picture executive writes: "I feel sure it is only right that I first thank you for the courtesy shown me at every airport. Courtesy and service of this type are so unusual I feel it should be called to the attention of our organization. Your service staff at Amarillo, Albuquerque, Winslow and Kingman made the writer a TWA booster for a long time to come." Another expresses himself thus: "Recently heard of your new airport service to private flyers. I think the idea is one of the loveliest gestures to the civilian and private flyers ever made in this country."

Therefore, TWA's plan to co-operate with private owners of aircraft goes beyond just a free gesture. It is a sane desire to make civilian flyers feel at home at all of its terminals and have them utilize its nation-wide facilities to their benefit. The terminals at which these services are available are Newark, Camden, Harrisburg, Pittsburgh, Columbus, Indianapolis, Chicago, St. Louis, Kansas City, Wichita, Amarillo, Albuquerque, Winslow, Kingman, and Los Angeles.

There is an underlying spirit of co-operation behind this whole scheme and an understanding of the complete setup at each airport will show TWA is not the least bit interested in making any money out of the service. To demonstrate this fact, there was an attachment to Mr. Frye's letter which listed all of the services available at TWA terminals by various independent service companies who engage in the sale of fuel, supplies, and make mechanical repairs. These individual enterprises were asked to join in the general movement to make the civilian flyer feel at home at the airport and to render such services as the private flyer would desire of them with the utmost courtesy and co-operation of TWA's personnel.

Aircraft 1935

Waco Custom Series

COMPLETION of engineering test flights for Approved Type Certificate on Waco's new custom series cabin with Continental, Jacobs or Wright power plants, was announced in April. Production has been placed on full time basis with deliveries expected to begin during May.

The Continental powered Waco produced a top speed of 155 miles per hour, with cruising at 135 m. p. h. Jacobs powered, the top speed was 160 m.p.h. with cruising at 148 m.p.h. With the Wright power plant, a top speed of 168 m.p.h. was attained, with cruising at 148 m.p.h. All figures derived were at 1,900 r.p.m.

Standard fairing includes cuffs on the wheels, fairing of the carburetor air intake, wing root fairing on both upper and lower wings including, for the first time this year, a fillet on the underside of the upper wing fairing on all interplane struts, on the tail wheel fork and on the horizontal stabilizer. Curved safety glass is used in the front windshield, and in addition to its contribution of increased speed, visibility is greatly aided by the elimination of one windshield frame member.

The instrument board is larger than on previous models, and the center oval panel is indirectly lighted. Extremely accurate electric gasoline gauges are installed on the instrument panel. The stabilizer control has been placed on the steering column and is much more convenient than the former position in the roof. Front seats are of spring construction for the first time, and the seats are adjustable over a long range fore and aft as on previous models.

Flaps are standard equipment on all custom models and are electrically operated. They may be used partially extended if desired. The balance tab on the aileron is controlled by a push-pull device similar to a throttle immediately above the pilot's head. A full three and one-half more inches in width is added to the cabin at both front and rear seat positions. Approximately six inches more space is provided in leg room for the rear seat.

The luggage compartment area has been increased materially. It will accommodate four full sized gladstone bags and four small zipper bags without crowding. It is also possible to carry four sets of golf clubs and still have ample room for at least three full sized bags. The compartment is readily accessible from an outside door for convenient loading and from a full sized inside door so that any of the luggage may be readily reached in flight. The area of the inside door is over twice the area of previous models, thereby eliminating the necessity of pulling the back of the rear seat forward. A light door hinges upward, permitting accessibility to all luggage.

Pitcairn Roadable Autogiro

HARKING back to the experiments of Juan de la Cierva, the new experimental craft being developed by the Autogiro Company of America incorporates a road drive mechanism permitting its use on roads when the propellor is disconnected. Rotating blades can be quickly folded so that the machine might be driven as a motor car and housed in a space about seven by twenty-four feet.

Elimination of wings and "direct control" through the rotor give complete control with no forward speed. According to Harold F. Pitcairn, president of the com-

WACO'S 1935 CUSTOM CABIN PLANE SHOWS MANY REFINEMENTS OVER PREVIOUS MODELS

Available with Jacobs, Wright or Continental power units, the new Custom Waco affords increased passenger and baggage space, neater lines, higher cruising speeds and greater efficiency of operation. Complete tests for Approved Type Certificate were made in April. Deliveries will begin in May.

pany, performance characteristics and some of the design details are not accurately predictable as yet although a prototype of the machine without the road drive mechanism has been operated in test work for two years.

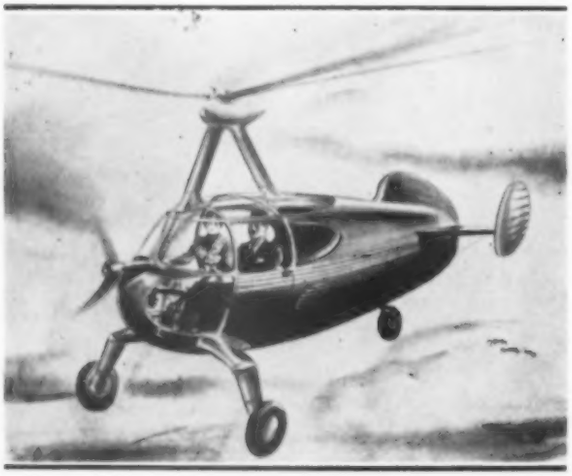
Several basic improvements are promised which include the "jump take-off," not as yet publicly shown, and the direct control principle which was recently demonstrated in New York and Washington.

According to Pitcairn, the features in its design have been carefully tested where its success is beyond reasonable doubt. "We can already fold the blades," he stated, "So that the machine can be housed in a space about the size of a one-car garage; the principle of direct control, which immensely simplifies flying has been thoroughly tested; vertical descent has been an accomplished fact for some time. Vertical take-off has been under test by de la Cierva for more than a year. The changes in the mechanism necessary for this do not affect the fundamental simplicity of the machine and actually simplify the process of take-off."

It was announced that the road drive mechanism is merely an adaptation of automobile practice and should present little difficulty and that the machine will be primarily a good flying craft, and security and economy in the air will not be sacrificed for performance on the road.

The following specifications and performance figures are approximate, based on the experimental machine which has been flown about one hundred and fifty hours.

Gross Weight	1350 lbs.
Overall Length	24 ft.
Overall Height	8 ft.
Overall Width (blades folded)	7 ft.
Tread	64 in
Wheel base	114 in.
Maximum speed on land	20-25 M. P. H.
Maximum speed in air	115 M. P. H.
Power Plant	7 cylinder Pobjoy geared radial
Horsepower	90 at 3500 (engine speed)
Diameter of rotor blades	34½ feet



"ROADABLE" AUTOGIRO
Artist's projection of the new Pitcairn autogiro being constructed under contract for the Bureau of Air Commerce.

Fairchild's High Speed Amphibian

THE Fairchild Amphibian is a mid-wing type cantilever monoplane, designed as a flying boat with retractable landing gear and tail wheel. It is powered by either a Pratt & Whitney Hornet engine of 650 horsepower at 3,000 feet altitude or a Wright Cyclone engine of 670 horsepower at sea level, equipped with a two-bladed Hamilton Standard controllable pitch propeller. The first unit is equipped with a Hornet.

The hull of the airplane is subdivided into six compartments by water-tight bulkheads and doors, the capacities of these compartments are so determined that the boat floats safely even with two adjacent compartments flooded.

The span of the plane is 56 feet, length over all is 46 feet; the maximum beam of the hull is 6¼ feet; the total cabin length is 16 feet and average cabin height is 6 feet.

In spite of the fact that the plane is a cantilever monoplane the wing weight is under 2.5 pounds per square foot. This figure includes flaps and flap supports, a spar construction which serves also as track for the landing gear retracting mechanism, landing light installation, braces and fittings inside the wings for attachment of tip floats, landing gear wheel wells, and navigation light installations.

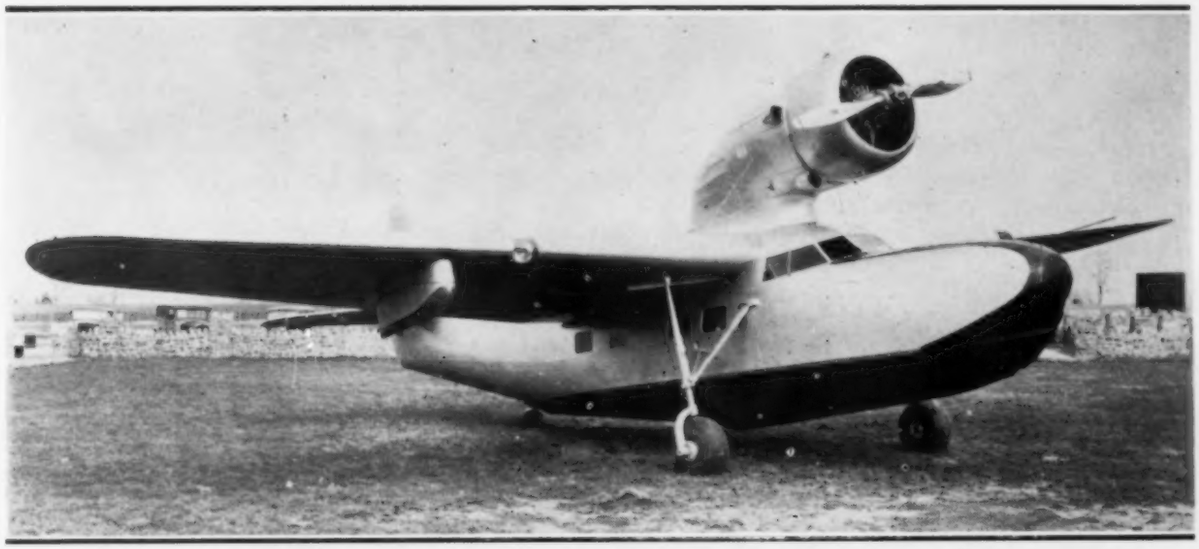
The ratio of useful load to gross weight is 42.7 per cent as an amphibian and 48 per cent as a flying boat without landing gear and tail wheel.

Hull

Structurally the Fairchild High Speed Amphibian follows proven methods of all metal, stressed skin, design, with many innovations in arrangements and details. The hull is of semi-monocoque type, with five watertight bulkheads and a number of frames of flat sheet formed into Z-sections. The frames are pierced out near the skin to allow the longitudinal stringers to pass through continuously between watertight bulkheads. The side stringers are made of dural sheet formed into Z-sections, the bottom stringers of the water planing surfaces are dural extrusions. It has a keel former rather than a heavy keelson, the water-loads being carried by the frames and bulkheads into the side skin. The chine spray strips are made of dural extrusions and serve also as structural members of the hull.

Wing, Ailerons, Flaps

The wing center section has a span of 13 feet and is riveted to the hull. A two-spar construction is adopted for the wing center section, with two fuel tanks of 180 gallons total capacity suspended between the spars. Tip panels are detachable and are built also on spars with thin sheet webs and dural extrusion flange, made of a special dural extrusion, is designed of two layers, an inner one with corrugations running parallel to the spars, and an outer one of flat sheet, riveted to the corrugations. The front spar of the center section is built of an upper and a lower flange with a dural sheet "wandering" web. The lower fllange, made of a special dural extrusion, is designed to serve also as rail for the landing gear retracting



THE WORLD'S LARGEST AND FASTEST SINGLE-ENGINED AMPHIBIAN TRANSPORT

Powered with a 650 horsepower engine, the Fairchild High Speed Amphibian has a capacity of eight passengers, two pilots, and 1,000 pounds of mail and express. Its cruising speed is 158 m.p.h. at 3,000 feet; mamixum speed 179 m.p.h.; cruising range 750 miles. It is the first amphibian of an order of six for Pan American Airways to be used on the route along the Amazon River from Para to Manaos and in other sections on the system where the flexibility afforded by the amphibian type is desirable.

trolley. By this method a great deal of weight of the landing gear retracting mechanism is saved, complicated fittings and braces are avoided, and the landing gear loads are carried into the spar without eccentric moments.

The rear spar of the wing center section does not run straight through the hull. It is curved above the hull center, to give proper door height with the wing seating low on the hull. This increases the spar weight but very slightly and preserves the aerodynamically advantageous wing location in relation to hull and nacelle. The wing nose portion ahead of front spar is metal covered; the trailing edge behind the rear spar is fabric covered. The entire underside panels between spars are removable for inspection and maintenance; they are secured to special stringers by elastic stop nuts.

Ailerons are of metal frame with metal nose and fabric cover over the entire surface. They are statically mass-balanced by lead weights carried on arms projecting from the hinge line, and the weights are enclosed in the wing at all except large up-aileron angles.

The trailing edge flaps are of all metal construction and are attached to the wing by slide fittings at the flap leading edge and links close to flap trailing edge. The flaps are actuated by cables which wind around a grooved drum in the hull. These cables are attached to the flap slide fittings which can move fore and aft on flap slide tracks mounted on the rear spar.

Tail Surfaces

The tail surfaces are built of dural framework and are fabric covered with exception of the nose parts, which are covered with dural sheet beneath the fabric. Stabilizer and fin are fixed attached to the hull and are braced by streamline tie rods. All control surfaces are equipped with trim tabs.

Landing Gear, Tail Wheel, Floats

The landing gear and tail wheel retract simultaneously. The landing gear structure is so designed, that the wheels fold from the ground position rearwards and upwards, the wheels are rotated slightly around the shock strut axis during retracting so that the wheels are flush with the under side of the wing when fully retracted. A spindle installed inside the front spar flange operates a trunnion on the wheel trolley. Turning the spindle causes the trolley to move inboards or outboards. The landing gear side brace struts are attached to the shock strut by means of a universal joint. A landing gear torque stop is provided on the side brace strut unit to prevent shock strut torsional loads to be carried up to the spar trolley. The tail wheel retracts into a well on the under side of the hull aft of the second step.

The wing tip floats retract against the underside of the wing by means of a parallelogram arrangement of struts. Spindles and trunnions—the retracting struts are attached to the latter—operate the floats. A recess is provided in the underside between the spars so that the float brace struts are fully concealed inside the wing. A metal panel attached to the outer brace struts hides the entire float mechanism when floats are retracted.

With three retractable units—the "Master Mind"—landing gear and tail wheel, flaps, and tip floats—the problem of operating each unit separately arose during early design stages. It was decided to use an electrical system with hand cranks for emergency use only, because of the difficulties in operating hydraulic gears by any type of power other than hand. The arrangement and location of the hand cranks for the operating units, so that all three were easily accessible and operatable by both pilot and co-pilot, constituted a particularly perplexing problem. The cockpit of a modern plane is always crowded with instruments and levers and various devices necessary for the safety of flight. To install three crank handles was well-nigh impossible. The solution lay in the use of only one

(Continued on page 32)

News Briefs

Notes From the Industry at Large

Curtiss-Wright Shows Profit

In the Consolidated Balance Sheet and Income Statement of the Curtiss-Wright Corporation, the net operating profit applicable to the shareholders for 1934, after deductions for depreciation and amortization, totaled $359,736.69 compared to a net profit of $135,896.27 in 1933.

Sales increased from $10,450,728.59 in 1933 to $14,009,533.03 in the year 1934, a gain of 34%. The unfilled orders as of March 19, 1935, totaled $7,791,-512.77 compared to $6,504,763.00 on March 27, 1934.

Cash on hand and in banks as of December 31, 1934, totaled $1,841,422.23 compared to $1,482,-465.81 on December 31, 1933, an increase of $358,-956.42 during 1934. Cash on hand as of December 31, 1934, was $750,419.38 in excess of the total current liabilities.

In the statement prepared by Thomas A. Morgan, chairman of the board, the outstanding progress for the past year was pointed out in regard to both planes and engines for military and commercial use. The activity of the Curtiss-Wright Export Corporation as well as the Curtiss Aeroplane and Motor Company and the Curtiss-Wright Airplane Company was included in the report. It was stated that continuation of the policy of leasing instead of operating airports resulted in substantial savings to the company.

United Traffic Up

Carrying 13,230 revenue passengers on its transcontinental and other routes, United Air Lines showed an increase of 54% over the previous month, and a similar gain over March, 1934. The month's volume was equivalent to the 1930 traffic total.

The March passenger loads helped to offset some of the losses sustained by the company because of curtailed income from air mail, according to the traffic report. Early April figures indicated the sharp traffic upswing was being sustained, and faster and more frequent schedules recently inaugurated were expected to result in further passenger increases.

Continental Receives D.O.C. Order

The award of a contract to the Continental Motors Corporation for a 90 horsepower, six cylinder, radial, air-cooled engine for use in connection with the program of the Bureau of Air Commerce to develop a low cost, easy to fly plane for the private owner, was announced in April.

The engine will be only 20 inches in diameter, and will operate on the two-stroke cycle which gives a power impulse from each cylinder every revolution in contrast to the popular four-stroke cycle engine which gives a power impulse for each cylinder every other revolution. The six-cylinder engine will therefore have as many explosions per revolution as a 12-cylinder four-stroke cycle engine. Following the automobile practice, the engine will be operated at a very high speed.

The specifications require that the weight of the engine will not be over two pounds per horsepower, including the starter and generator.

Combs and Jury Promoted

Appointment of Roger M. Combs, Jr., as sales manager, and Glen G. Jury as transportation manager of American Airlines, was announced in April by Charles A. Rheinstrom, general traffic manager of the company.

Both appointments were made to fill newly created positions established by the company for the purpose of bettering its service to the traveling public, it was pointed out. Combs formerly was air express traffic manager for the company, a position he held for three years during which time he was instrumental in the organization and development of General Air Express. He has been chairman of General Air Express for the past two years. Jury has been assistant to Mr. Rheinstrom for the past year and has been active in air line traffic work since 1926.

New Waco Distributor

Located in the former United Terminal Building on Love Field, Dallas, Culver Aircraft, Inc., a Texas corporation, was appointed last month as distributor of Waco airplanes for the major portion of Texas and northern Louisiana. The Texas territory includes all of Texas with the exception of the San Antonio and Austin sector. Officials of the new company are George L. Culver, president, Roy A. Nelson, vice-president, and N. S. Nelson, secretary-treasurer. The company has also received appointment as authorized sales and service of Wright and Jacobs engines and Hamilton propellors. Aircraft accessories and aviation gasoline and oils will be available.

A complete stock of every late model Waco will be maintained on the sales floor at all times. The new Custom cabin model is expected to arrive during the first week in May. Two Wacos were sold during the first week of business.

Members of the personnel include Herb Kindred, Chief Pilot; Vance Avasicek, of Tulsa, master mechanic; C. K. Killingsworth, mechanic; also in charge of the hangar, and Miss Jean La Rene, office secretary.

Naval Budget Favored

The House Appropriations Committee reported favorably in April the new $465,286,261 naval budget for the 1936 fiscal year. It establishes a new high for peacetime naval budgets, and exceeds that of 1935 by $174,879,098.

The bill provides for the construction of 555 new planes of which 282 are replacements and 273 additions to the present total of 1,193 in a program to

build 2,000 new planes before 1942. The Bureau of Aeronautics would receive $52,000,000, a yearly increase of over $32,000,000.

The committee refused to increase the lighter-than-air station appropriations and remarked that it was proposing with hesitation the construction of one small rigid airship at a cost of $70,000.

Martin Receives Contract

The Glenn L. Martin Company has been awarded a contract by the War Department for fifteen bombing planes and spare parts, involving a cost of $757,941.71. The Martin concern already is engaged in filling orders for eighty-eight planes and spare parts at a cost of $4,197,000. According to Glenn L. Martin, the new contracts assure continued work for the 1,600 employes with some increase in the fall of 1935 and spring of 1936. Delivery of the first of the eighty-eight planes will begin the latter part of May and will continue until August, 1936. The fifteen bombers, it is planned, will be delivered in June and July, 1936. In test flights, the new bomber has chalked up a speed of 243 miles per hour.

Pending additional work on sound-proofing, engine developments and the strengthening of her sea wings, the giant clipper ship No. 7, which is being constructed by Martin for Pan American Airways, will be given her next test on May 10. Inspectors of the Bureau of Air Commerce will be at the Martin plant to conduct customary tests prior to the issuance of commercial licenses. It is expected that flights to Miami will be made between the middle of May and the time of delivery of the clipper to Pan American in June.

New Kollsman Branch

The Kollsman Instrument Company has established a branch office at Grand Central Air Terminal in Glendale, California, with Charles H. Crockett, formerly service engineer for Kollsman, in charge. A. Biederman will operate the service department of the new branch, which is located in the Aircraft Industries' hangar. Complete calibrating, repairing and assembling equipment is bein installed.

Exposition Opens in May

San Diego, California, as the home of the California Pacific International Exposition which will open on May 28th, will also be the scene of extensive aeronautical maneuvers during the summer months, according to present plans. It is expected that at least two major massed flights and aeronautical concentrations will be held by both the Army and Navy, as well as weekly massed flights of major importance.

Plans are being made for the reception of visitors who are expected to arrive by air from all parts of the country. With Lindbergh Field less than a mile from the Exposition grounds, aerial visitors may fly to the Exposition and store their planes at the municipal port. Heavy air travel, both in the private owner and scheduled air line brackets, is expected.

Aviation Day Planned

A special mail cancellation machine will be set up at Winburn Field May 12 when members of the San Antonio Model Airplane Club stage an observance of Aviation Day. Postoffice and field officials will co-

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operate with the club in an effort to send a record amount of air mail out of the city. Admission to the exhibition at the field will be an air mail letter ready for posting.

The exhibition will include an equipment show of the leading makes of American aircraft for the private owner. Letters have been sent out to all manufacturers inviting them to send representatives and equipment. A definite effort has been made to bring out hundreds of potential purchasers of new aircraft who reside in the San Antonio territory.

The advisory committee for the Aviation Day program includes Mayor C. K. Quin, Postmaster Dan Quill, Colonel Jack Lapham as special representative of the Chamber of Commerce, and P. H. Hebert, Director of the Club.

Boeing Financial Statement

In their first report to stockholders since their formation as an independent manufacturing organization last fall, the Boeing Airplane Company and its subsiliaries, Boeing Aircraft Company and the Stearman Aircraft Company, show losses for the last four months of 1934 but express confidence in the outlook for future business.

According to the consolidated financial statement, sales and other income totaled $1,140,378.84 from September 1 to December 31, 1934, while operating expenses and deductions amounted to $1,366,355.99, producing a net loss of $225,977.15.

C. L. Egtvedt, president of the Boeing Airplane Company, advised stockholders that both the Boeing and Stearman companies have been working on new commercial and military airplane designs which, it is expected, will result in future sales. Expenses in this connection, together with increased costs and a decreased volume of business due to the generally unsettled condition of the industry, figured in the deficit shown in the report, he stated.

New Braniff Schedules

A new connection, effective April 28, with Transcontinental & Western Air planes at Amarillo for Los Angeles and New York from all points in Texas has been announced by Braniff Airways. The afternoon departure from Dallas is at 4:05, arriving in Amarillo at 7:00 o'clock. The TWA plane arrives in Los Angeles at 11:50 the same night. When the Electras now on order are delivered prior to June 1, Braniff will connect at Kansas City with TWA's "Chief" for New York. Seven Electras have been purchased, the first to be delivered having been placed recently in regular service between Dallas and Brownsville. When the complete order is filled by the Lockheed Company, the time of travel between Chicago and Brownsville will be cut to approximately ten hours flying time.

Improvements at San Antonio

Rebuilding of Brooks and Kelly fields at a cost of several million of dollars was believed close at hand during April with the arrival of Captain Harold L. Clark, Air Corps, of Washington, who planned Randolph Field a few years ago.

Captain Clark came as a representative of the building and grounds section of the Air Corps and has made an inspection of both Brooks and Kelly in anticipation of plans for the huge undertaking. Recently applications were made for $5,438,000 for new construction at Kelly and $3,835,000 for Brooks. These applications have met with the approval of high government officials with the results that hopes are high for the projects to get under way shortly.

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Supplying Manpower

(Continued from page 9)

prosperity than an existing demand for manpower.

I think there is no profession or industry so exacting in its requirements, with reference to employes, as is the aviation industry. I believe there is no profession or industry that offers such a fine opportunity for the thoroughly trained man, who can be absolutely trusted and depended upon, as does aviation. On the other hand, I am equally strong in my conviction that no profession or industry offers so little opportunity to a partially trained man, or even to a well trained man who cannot be absolutely trusted and depended upon or who does not show the proper attitude.

I find that the operators are first interested in a student's work time grade, which indicates his attitude in doing some of the less agreeable tasks, such as unloading coal, sweeping hangars and cleaning up about the airport.

They are next interested in a student's attendance. If he is sick, they want to know it, and if he is irregular in attendance or trady, they want to know it, because a man whose attendance record is poor is generally not very trustworthy or dependable.

Then they are interested in the student's attitude, which is made a matter of record at Parks Air College every day during his stay. Finally, they are interested in the student's theoretical and practical work and the educational background he has established in school.

I think my work is the finest in the world, because I love to work with young men. I enjoy the job of directing them, because in doing so I believe I am not only rendering the students, but also the aviation industry, a very valuable service.

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Uncle Jim of Oklahoma

(Continued from page 13)

leased a large parcel of land and went into the lumber business, both on a wholesale and retail basis. In 1913 he sold his interest and secured an oil lease in what is now known as the Cushing Field. He obtained this lease from an Indian, and during the next few years, when over thirty-three wells were drilled on the lease with not one dry hole, some two hundred claimants appeared on the scene, representing themselves to be blood kin of the original lease signer, and therefore sharers in the wealth. Perhaps it was from all these quasi-kinsmen that Mr. James Brazell acquired the prefix of "Uncle Jim."

It was not until 1928 that Uncle Jim purchased his first airplane. It was delivered on a Saturday after-

noon and on the following Monday, in true Brazell style, our hero set out for California. But at Gila Bend, near the projected goal, the OX coughed, sputtered and stopped, necessitating a train trip to complete the schedule for the boss, while Pilot "Red" Grey remained at the Bend, repaired the motor, and returned to Oklahoma City alone.

Several months of flight in the open cockpit job convinced Uncle Jim that for variety he needed a cabin plane, whereupon he purchased a six-place Buhl Airsedan. The proud owner of two pieces of equipment, he figured that he might as well acquire more; so he flew to Colorado Springs and secured the Oklahoma distributorship for Alexander's Eagle Rock. Back again to Oklahoma City, he formed Western Airways as a sales and school institution. It thrived.

The happy thought occurred to him that as an executive in a sales and service company, and the owner of airplanes (plural) he should learn to fly and the logical place to learn was from his own company instructor. Chief Pilot Hardy Young can be blamed for the early instruction and hasty solo. Hastened into the ranks of the solo pilots, Uncle Jim immediately awarded himself a brand-new Waco as a graduation present. A few months later the keen desire to own and fly a wheel controlled plane led to the purchase of a Stinson. But his long association with the stick,—first as an encouragement to balking mine mules, then as a means of twisting hand brakes, next as a method of goading house-moving oxen, feeding the mill saws, cracking heads in the role of deputy, and finally a-hold of the good old hickory stick after solo—all contributed to the yearning to be back on the stick again, and the discovery that his acquisition of a wheel controlled plane was not the triumph he had anticipated. For today he is flying a new stick controlled Fairchild.

Might we suggest to those few manufacturers who have never enjoyed a sale to Mr. Brazell, whether they are engaged in the production of either stick or wheel controlled planes, that they immediately get on the line and attempt to place a ship with a man of changing tastes in order that the world's record for variety of ships owned will rest irrefutably in the hands of Uncle Jim, a true friend and relative to every member of the flying fraternity.

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Survey of Air Transport

(Continued from page 12)

produced the present economic depression may conceivably prolong the present state, or even accentuate it into a chaotic situation. In such a state of affairs air transport would have no part to play.

The failure of the Federal Government to fully appreciate the significance of air transport would delay the development of aviation. There is great military advantage in the development of commercial flying, airways, and airports which the government should not overlook. If air transport does not receive adequate assistance, its development will be delayed but it will inevitably attain its full stature at a later date.

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"Off Course"

Vignettes of the Month

Readers' contributions to this column invited.

Special Feature

One day last month, radio listeners of Oklahoma City's KOMA were entertained by a special feature broadcast arranged between Bill Lear of radio development fame and Neal Barrett, KOMA station manager. By means of short and long wave hook-up, Lear described his flight over the city as directed by Barrett from the studio atop the Biltmore Hotel. Responses were heavy; recurrence desired.

Propoganda ?

Dear Sirs:

As President of the University of GHENT's section of the National Association for Aeronautics Propagande Amongst the Students, I take the liberty to ask you, whether, in order to complete our documentation on the United States, we could be put on the free distribution list of your most interesting review.

Our section, newly founded, (1934), does not posess a very brilliant pecuniary situation nor complete documentation. Shall we have the pleasure, by your kindness, to have also on our list as American air-paper, the most important *Southwestern Aviation?*

Hoping the favour of good news, we thank you so much beforehand and are, Dear Sirs,

Yours very truly,

Nationale Vereeniging van Universitaire Kringen voor Luchtvaarpropaganda.

HAWAII AND RETURN

The plane and pilots of the month—Pan American Clipper with Edwin C. Musick (left), First Officer Pilot R. O. D. Sullivan (right), and Sperry Gyropilot (center) at the helm.

No scheduled transport flight was ever more matter-of-fact, more prosaic than the Sikorsky's almost casual jaunt to Hawaii and return. While the Gyropilot and directional radio beam guided the huge flying ship, Musick and Sullivan busied themselves with other details of flight.

Weather reports were received every twenty minutes. Position reports were transmitted every thirty minutes.

On the trip over, which sliced seven hours from the record established by six Navy planes last year, Pan American Clipper made a 150-mile survey of landing areas around Oahu Island after arriving in Hawaii and prior to slipping smoothly into Pearl Harbor within one minute of schedule.

Total distance was 2,410 miles, longest stage of the transpacific route to China; total time:, 17 hours, 45 minutes; total payload, 8,000 letters which cost philatelists $1.09 each; total crew, 6.

The trip back to Alameda was just as deliberate and commonplace as the flight to Hawaii despite the fact that the daily press carried scare head lines of fog and tough weather when the Clipper was five hundred miles off the California coast.

Refusal

Col. Roscoe Turner was accosted recently by a subscription representative of SOUTHWESTERN AVIATION. "Hell no," said Roscoe, "I haven't read an air magazine in over six months!"

Bad luck ensued. His plane caught fire while being serviced; a tough dust storm caused him to turn back at Mineral Wells, Texas, en route to fulfill a speaking engagement before the Breckenridge Lions Club.

Ground Time

Ground time delays of Eastern Air Lines due to gasoline servicing of their Douglas Flyers on all three routes were cut a total of 10 hours and 45 minutes last month when six gasoline trucks capable of pumping 55 gallons of gasoline a minute were delivered and stationed at Atlanta, Miami, Jacksonville, Washington, Newark, and Chicago.

Delivery

Mr. W. T. Piper of the Taylor Aircraft Company came into the Southwest recently with a Taylor Cub, unassembled, trailing behind his automobile. Once delivered, he supervised the assembly and test flight. The trailer method of delivery, according to Piper, has its advantages. It affords the chance to visit all airports along the route; it advertises the plane and name to thousands in city streets; it permits the hauling of dealers in quantity back to the factory for new deliveries.

Motorman

You can't fly the same route seven years without having some peculiar experiences.

Lowell V. Scroggins, seven years a pilot with Pennsylvania Airlines, a reserved and quiet sort of man, had just been promoted to the passenger run in a shiny new Stinson tri-motor. His uniform was new and the buttons shone brightly. He just knew his passengers' eyes were on him. And they were. As he left the plane, the quaint little old lady with the black silk ruffles and the bonnet, seemed to want to speak to him. He went over politely, but dignified, and bowed to her. She had a high-pitched voice that quavered and covered quite a range.

"Well, Motorman," she said, "That was a very pleasant ride."

She handed him a dollar bill, and Scroggins, the well-dressed, immaculate Pilot, walked away with his uniform hanging loosely on a very shrunken frame.

Ports of Call

Correspondence From the Airports and Airways

Baltimore, Md.

The Junior Association of the Baltimore Association of Commerce, composed of the young business men of the city, has formed an aviation committee which will associate itself with aviation activities now under way in connection with securing a PWA loan for the completion of the Baltimore Municipal Airport, and also will join in promoting Baltimore as the logical Western terminus for the proposed trans-Atlantic airline. The committee also will interest itself in promoting aviation in general in this city and lend its help in making Baltimore assume a front rank position in the aviation world. Walter Kidd has been appointed chairman of this committee, the other two members being George Hess and Wm. Gildea.

The Capitol Airport, Inc., Bladensburg, Md., has been organized and chartered to operate an airport. Capitalization has been placed at $20,000, consisting of 2,000 shares of stock, each having a par value of $10. The organizers and incorporators of the organization are Edward W. Stitt, Bladensburg, Md.; Robert W. McCullough, Landover, Md., and Robert Martin, Washington, D. C.

A petition for a revival of its charter has been filed with the Maryland State Tax Commission by the American Flying Club of Baltimore, Inc., however, at a recent reorganization meeting it was decided to rename it the Maryland Flying Club and incorporate the Camber Club, thereby bringing the total membership to nearly one hundred. The Flying Club was first incorporated in 1919. Up until the time it relinquished its charter, the group sponsored various air meets, concerts and social functions, among which was the annual Aviation Ball.

Officers elected to supervise the newly organized club are: Dr. Herbert Schoenrich, president; C. D. Fenhagen, Jr., first vice-president; Howard A. Kelly, Jr., second vice-president; William D. Tipton, secretary and Lewis R. Lemke, treasurer. The election of officers took place at the meeting held at the Curtiss-Wright Airport, which was also designated as official headquarters of the organization.

Gen. Henry Warfield was appointed chairman of the board of directors at a meeting of that group. The board of governors is composed of seventeen members. The board also voted appropriations for complete renovation of the new and enlarged quarters at the airport. And May 4th was designated as the date for the first meeting of the reorganized membership. The program of activities as mapped out by the board includes a proposed air meet May 26th and the resumption of the Annual Ball. The dance in all probability will be held in the West hangar at the airport according to officials of the club.

More than three thousand spectators gathered at the Curtiss-Wright Airport, Greenspring and Smith Avenues to see an exhibition of flying with bat-like wings by Clem Sohn. Sohn's performance was in the form of a preliminary to the formal opening of the new Chevrolet and Fisher body plants in Baltimore. Sohn, in addition to wearing a bat-like arrangement of wings, also had a parachute, and in his exhibition he jumped from the plane and soared for a time with the wings before opening his parachute. He was accompanied by Pilots "Art" Davis and Paul Eberle.

Flying ninety miles over the ocean from the Cape May Coast Guard station to the Bull Line freighter Cornelia, Lieut. Richard Burke took from the ship, Irvin Armstead, seaman, and rushed him to the shore station for treatments when he fell down an open hatch, according to Bull Line officials here. The vessel had sailed from Baltimore earlier in the month. The amphibian plane was pressed into service when it was realized contact by tender would be a matter of hours and the seaman's injuries were described as serious.

An airplane piloted by Col. Wiliam D. Tipton, and equipped with loud speakers, was utilized in the campaign waged for the annual "roll call" campaign for 35,000 new members of the Red Cross here. Col. Tipton was accompanied by Charles Thompson, another pilot.

Flyers of the Maryland National Guard air unit staged a rescue demonstration to show the way in which National Guard air forces cooperate in time of disaster, in connection with the Red Cross Roll Call. Five ships under command of Charles A. Masson, commander of the group, took part in this demonstration.

The Hochschield, Kohn & Co., department store, has stirred much interest in aviation, especially among the youngsters through its Stratosphere Balloon Contest and Air Circus Day, which it staged at Curtiss-Wright Airport. The event was staged by arrangement with Col. W. D. Tipton, in charge of the airport, and it included parachute jumping and stunt flying.

Beaumont, Texas

Luther Caruthers is recovering and rebuilding his J6-Robin. With its new leather upholstering and a special paint job, it should turn out to be one of the best looking jobs on the field.

W. N. Vickers, Jr. and Lois Neel were granted transport licenses recently. Vickers, formerly Beaumont airport manager, is now associated with the Williams Flying Service here.

Governor Allred and his party, who attended the opening ball game in Beaumont recently were to be flown back to Austin in a specially chartered Lockheed of the Bowen Air Lines. However, the pilot, C. C. Scott, encountered a severe dust storm at Houston and the party was entrained from that point to the capitol.

D. R. Watson, a Houston member of the Wing Over club, has purchased a States Monoplane from Minor Stewart, Houston. The States, a made-in-Texas airplane, is built at Center. Johnny Burchfield, demonstrator for the Taylor Aircraft Company, spent a week in Beaumont recently, showing off his "taylor made"

airplane to local pilots and to pilots in Lake Charles.

New members voted in the Wing Over Club recently are R. C. Foster, Saratoga, Texas; W. M. Henderson, Galveston and Paul Montagne and Louis Howard of Beaumont. They will be initiated at the semi-annual initiation in June.

Among recent visitors were A. F. Dupont in his Waco; R. M. Lyle, Chickasha, Okla., in his Fairchild Kr-21; S. A. Peterson, Wyandotte, Mich., apparently an advance man for Santa Claus—at least he was carrying top samples in his Stinson; H. M. Lake in the Socony-Vacuum Stinson, and a number of visiting army ships. Two of these army men, Bo Sangster and Frank Glen, are local boys who made good and are now at Barksdale.

There has been a noticeable increase in air line travel through the Beaumont port. This may be explained, partially, by the improved equipment of the Wedell-Williams Airlines, who operate through here, and by the better schedules on connecting airlines.

Doc Armstrong is putting finishing touches on his Lincoln-Paige, which was damaged in a taxi accident recently. Jimmy Cruikshank is finding his Porterfield a speedy little ship for cross-country and there is considerable activity among the private fliers here.

Carthage, Mo.,

H. G. Harper, who operates both the Joplin and Carthage ports, sold one of his J-5 Ryans to John Stover of Hot Springs, Ark., taking in a Hisso Travelair on the deal.

Harold Jones of Joplin promptly bought the Hisso Travelair and everyone is satisfied. Jones will have his ship in the air after a few minor adjustments.

Harper has had his crew of ground students tearing down and rebuilding a J-5 Ryan during the winter under his supervision and recently had the ship relicensed and it will take to the air shortly. They have been taking their time on this job and it will be one of the neatest Ryans in the country, all blossomed out with an orange fuselage and silver wings with black trim.

The Joplin port has a nice group of ground students enrolled and the shop has been equipped with a complete set of wood and metal-working tools such as power saws, paint spray outfit, etc.

Louis Proctor, who has been managing the Joplin Port, moved to K. C. recently to work for T. W. A. on the maintenance department. Succeeding him at Joplin is one Leonard (Red) Ponds, a Joplin lad. (No relation to Gene Ponds). Happy landings to Loui!

Harper is lining up a flock of spring flyers, both in Joplin and Carthage and if spring ever breaks there will be a lot of activity at both ports sprouting wings on these fledgelings.

C. K. Kost is still piling on the hours. Been at it since December and has about 175 hours on his logbook.

Merl Carpenter has had his Salamson-Carpenter biplane in town all winter experimenting on a steam motor for it but is bringing it back to the field in a few days with the Salamson still in place. His growing desire for flying got the best of him so he will be burning gas this spring instead of kerosene or fuel oil.

Chanute, Kansas

As soon as they get their business completed in New York, which will be around the first of May, Mr. and Mrs. Martin Johnson are expected to arrive in Chanute for a visit with Mrs. Johnson's mother before going back to Africa. They plan to stay for about a month in Chanute. They will fly here in their single motored Sikorsky.

The Barling NB-8 which belongs to Glen McConnell is flying again. Early in the year a strong wind turned it over, causing some damage. It has been in repair at the local airport, "Jiggs" Baker doing most of the repair work. "Dick" Dickerhoof, the local airport manager, test-hopped the ship.

Jack Lysdale, of Mankato, Minn., came after his OX5 Robin in April. He has had the motor up at Mankato giving it an overhaul job during the winter months. Jack drove here with the motor in a light delivery truck. After installing the OX, Jack left for home by air. Friends drove the car back.

Merle Smith has several students at Garnett and also at Chanute. He is giving instruction in his Travelair.

Everyone around the airport knows now that spring is here as Ivan Spong has his Aeronca back in the air again after having it stored for the winter months.

Harve Wilsey, a Santa Fe engineer, has soloed at Wichita and is the proud owner of an airplane. He plans on flying his plane to Chanute in the near future and keep it here.

"Dick" and "Smitty" barnstorm every Sunday when the weather is good. They have been covering a good part of Southeastern Kansas.

B. T. Barber, Colony pilot, expects to bring his T. P. Swallow to Chanute in the near future and make it his headquarters for flying.

The "Flying Minister," Rev. R. E. Highley, has "Dick" to do his flying for him. He is the owner of a Challenger Robin.

Coffeyville, Kan.

Gen R. E. Wood of Chicago, President of Sears, Roebuck & Company, and other Sears officials, were recent visitors. Gen. Wood was on an inspection trip, visiting Sears stores between Kansas City and Dallas, the trip being made in a chartered Waco. General Wood remarked that the local airport was one of the best fields on which he had ever landed.

The largest airplane ever seen here arrived on the 8th of April in the shape of an Army Curtiss Condor, the private ship of the Assistant Secretary of War, Harry H. Woodring, who visited relatives in Neodesha and inspected proposed lake sites near here. The crew of the Condor, in charge of Lieut. Townsend Griffis, paid another compliment to our airport when he declared the local field was the only one between St. Louis and Wichita and between Kansas City and Tulsa on which the big ship could be set down with safety in any kind of weather. The ship which was bound for army posts in Oklahoma and Texas from Washington, D. C. blew out a tire on the tail wheel while sitting in front of the local hangar.

The Tail-Skid Ground School has been organized to teach the various subjects required to pass a pilots license. Meetings are conducted one night a week in the airport Administration Building. Instructors are

Lieut. Johnnie Miller, graduate of Kelly Field, Airport manager Lynn Berentz, Lee A. Cook, Dept. of Commerce weather man, La Verne Dawson and Carl Hall, professional parachute jumpers.

Lieut. Clare W. Bunch, Monocoupe general manager, was in recently flying a new Monocoupe, for a visit with Lieut. Berentz and Lieut. Miller.

Mr. H. J. Powell, editor of the Coffeyville Daily Journal, and owner of Radio Station KGGF, chartered the Coffeyville Airways American Eagle for a trip to Hardy, Neb. to attend the funeral of a relative. Airport Manager Berentz was the pilot.

Lynn Berentz and a student, Paul Keith, flew the American Eagle to Wichita March 31 to attend the dedication ceremonies of Wichita's new Administration Building.

Inspector M. H. Goodnough issued a new license to Ed Baker of Neodesha for his Arrow Sport, and renewed Art Inman's Transport license, on his last trip.

El Paso, Tex.

V. M. "Vic" Hugo, Chief Mechanic for Pan American Airways at this port, has been particularly busy these past few weeks. Jack Weiler has been the center of a great deal of student instruction in spite of the too frequent dust storms that have plagued the district. He and his partner, Grant Nichols, are rebuilding and repainting the Aeronca purchased in March.

Pan American has maintained a remarkable schedule between El Paso and Mexico City all winter. Traffic continues to gain over this particular route.

Fort Worth, Tex.

Add to the growing list of new plane owners, Mr. Bert Weekly, prominent Fort Worth independent oil operator, who has recently purchased one of the brand new four place Stinson Cabins. According to Agent Doc Booth, the plane will be delivered during May. Charles Curry, formerly with Texas Aerial Surveys, now heads Weekly's "Aviation Department" and will be keeping the air stirred up in the new Stinson between this city and Mexico. Curry will base at Mission in the Rio Grande Valley for the next few months.

Fort Worth's wanderers are beginning to report. A recent dispatch from Monty Snedeker, who is with the national air service of Santo Domingo, reports hard but agreeable work in his new job. Lloyd Earl in for a few days en route to purchase another ship for Santo Domingo Service.

Hiram Broiles reports all is well in China. He is with the Chinese National Aviation Corp. Charlie Sharp is also still on the job across the Pacific.

C. W. "Rosy" Von Rosenberg and George Carroll are the most recent deserters from the Meacham Field ranks—off to Houma, Louisiana in new jobs at the Texas Company's seaplane base, busy rebuilding several planes that will commute between the base and the oil fields out in the Gulf of Mexico off the Coast. Emily Frazier, visiting in Los Angeles, advises she has kept up her time, but mostly as a passenger.

Braniff Airways' spick and span Electra and Bowen Airlines' popular fleet of new Vultees, along with Americans' host of Douglases, Condors and Vultees keep airline activity alive and humming around Meacham Field, especially in the mornings when five or six begin their fast daily schedules. Bowen added Vultees March 1st; Braniff, with great ceremony at the field, introduced their Electra April 13th, when hundreds of especially invited guests took short hops over the city.

Glen Harroun, flying executive of Sinclair, traded his Lockheed Altair in on one of Bowen's Vegas during April.

Jack Webster from Waco, flying since '25, took his first crack at a D. O. C. license. After a few days coaching he successfully passed his Limited Commercial test and with a little more study of meteorology and navigation he expects to try for his Transport.

Tom Ellis brought a new canary yellow Aeronca safely through constant bad weather and dust storms from the factory. The ship is the newest addition to the Ritchey Flying Service. "Ed" has just been appointed Aeronca distributor for North Texas.

Visitors of note include Al Jacobs, Mr. Roscoe Turner, J. B. Plosser, president of Grand Central Flying Service, with one of his students, and Frank Miller, Publicity Director of Grand Central, flying a Colonel transcontinental, in the official capacity as Captain in the National Guard.

Houston, Tex.

Jack Kelly came through Houston several weeks ago on a "demonstration hop" of the new low wing Stinson. In the party were Harry Williams and his associates in the Wedell-Williams Air Line. The flight was made from New Orleans to Brownsville and return. According to reports, it is probable that Wedell-Williams will use these new tri-motor Stinsons on their line.

The ship attracted much attention from the airport crowd as did the Electra which the Braniff Lines sent down, by Roy Shroeder, for exhibition purposes.

Aeronautical Inspector M. F. Clark has taken delivery on a Monocoupe and will make his official calls in it instead of his car.

The Texas Fairchild Company has completed work on their blind-flying Fairchild 22 and are now giving instruction on it. The ship has a complete set of dual instruments, gosport communication outfit, radio, and, of course, a folding hood for the student. All operators at the Houston port found student, charter and passenger business good during the past month.

The leading Distributor in each community will gladly demonstrate this outstanding low priced plane. - $1295.00 to $1795.00 -

PORTERFIELD AIRCRAFT COMPANY

2506 McGEE ST. KANSAS CITY, MO.

Under the management of J. L. Schroeder, Houston's Main Street airport is showing signs of taking a new lease on life. Much work has already been done on the field itself such as grading, drainage and other improvements and it can now be considered an all-weather field. A tractor was purchased for this work. Schroeder has already installed electric lights and arrangements have been concluded for a telephone, the first time that the field has had this necessary means of communication.

Ross Biggers is erecting his own hangar at the Main Street to house his J6-5 Waco and permanents in the big hangar include: R. G. Buswell with his Fleet; Strake Petroleum Corporation with their Waco; D. R. Watson has moved his recently-purchased States to this field; Sneed and Sellers have a Robin; Mr. Lyle houses his Fairchild 24 there; Miller and Dennison have their Corbin Junior and the list is completed for the present with Schroeder's O-17 cotton duster and his Stinson Junior.

R. G. Buswell, who recently moved here from Shreveport, La., is building up a fine student list which includes Charlie Walling, Raymond Boynton, R. S. Fields, Lawrence Roberta and others. Instruction is being given on the Kinner-Fleet by Buswell, who purchased the ship from Leon Kattache, of Houston.

Schroeder, the new manager of the Airport, is well known in Texas aeronautical circles as he has maintained a supply and repair station for several years in Houston. He still maintains this supply office down town and is making every effort to establish the Main Street port as one of the leading airports in this section. Its very convenient location should be a big factor in the realization of this ambition.

Kilgore, Tex.

As a visitor remarked the other day, where did all these airplanes come from? It's a long, long story for a news column.

Roland Roberts, Gladewater, and Pinkey Edwards, Longview, drove up to Wichita, Kansas recently. The following afternoon they flew into Elder's Field with a LeBlond Arrow-Sport, whose original home was Nebraska. Roberts is the proud owner.

R. A. Firestone, Kilgore, together with Roy Taylor, Airport Manager, went up to Dallas and inveigled someone out of a Challenger Ken Royce. Dr. Routon caught the fever and bought the Ken Royce from Firestone, which makes room for another purchase before long. A. V. Muzzey, perhaps feeling that they were all getting ahead of him, announced that he had an OX Swallow in the Hangar at Tulsa. Presto! it was soon on the local field, and flying too.

All the commotion probably led to the decision of L. T. White to paint up, have a 200 hr. check, and a newly majored motor for his Challenger Eaglerock. Phil Ray and H. C. Stewart came over from Overton, and couldn't resist getting in on all this action, so purchased a Kinner American Eagle from Roy Taylor.

Which all explains a part of the line up and activity, but if not, the others belonged to Dr. Connor, Pinkey Edwards or J. B. Nehls, local owners.

In April one might have seen Colonel Murry in from Maxwell Field. Garza Wooten in a Waco, J. C. Tankersley and Bill Fraley in an OX Commandaire from Little Rock, Jim Davis in his Waco and up from Houston, L. Cavender in Embry Hunt's Vega, Dewey Stewart and J. B. McDermot in the Fairchild, Mr. Overstreet in his Stinson, over from Tyler, L. H. Collins from the Monocoupe Factory, Dave Trammel in his Stinson, and attending to his legal work in the East Texas Field, C. P. Burton and pilot McDonald in their Waco, or Glen Harroun in Sinclair's Lockheed over from Fort Worth.

If these were not the planes, it must have been Taylor Brothers' Curtiss Junior—the one the students keep busy all day.

Lafayette, La.

The following students have soloed: J. J. Gillentine, Gueydan, La., Richard "Dick" DuBuisson, Opelousas, La., H. A. Bailey, Opelousas, La.

About fifteen boys from neighboring towns have come to take physical examinations for student permits from the medical examiner, Dr. L. B. Long.

The Lafayette Municipal Airport boasts of three Lincoln PT's and a Rearwin, Jr., now in operation on the field.

Recent visitors: Lt. Prudomme of Wright Field, Ohio, in an Army Pursuit plane, Luther Caruthers of Beaumont in a new Porterfield, State Inspector D. O. Langstaff, Ben Branson of Dallas, Texas, in his cabin Travelair, Eddie Ross in a Beechcraft, Tulsa, Okla., and Leo Bulliard of St. Martinville, La., in his Robin.

Jimmie Jones and Joe Davies drive down from New Orleans, La. every Sunday to take instructions.

Marshall, Mo.

The newly developed Plymacoupe, constructed by the Fahlin Aircraft Company of Marshall, has been test flown and pronounced highly successful. It is a high wing monoplane, with side by side seating arrangement and powered with a standard geared Plymouth engine. It is of very clean lines and is said to have a top speed of around one hundred and twenty miles per hour. The first ship has been sold to the Bureau of Air Commerce.

Tommy Webber has recovered the wings of his Waco 10 and has it back in flying shape and relicensed. Ed Hayes of Sedalia, who also keeps his plane on the local field, has also had his relicensed and inspected

Mr. A. S. Kotch of St. Louis, Bureau of Air Commerce inspector for this district, paid us a visit in April.

Lawrence Short and Bill Powell are making progress on their NB-3 which they are assembling and covering. It won't be long until they hope to be flying again.

Montgomery, Ala.

With the close of the 1934-35 session of the Air Corps Tactical School at Maxwell Field, Montgomery, Alabama, on June 4 this year, more than three score officers will be transferred to other points of duty, while as many or more will arrive during the summer to take their places.

The scheduled transfers include about 55 student officers, and a dozen Tactical School instructors and post officers. Orders already have been received from the War Department designating future scenes of activity for 41 officers now in the School, as well as naming 50 officers who will report to the School in

September, this year, for the 1935-36 term.

In the annual mid-summer shift of personnel at Maxwell Field, one of the most important changes will take place on July 1, when Col. Arthur G. Fisher, now on duty in the Air Corps Chief's office in Washington, will assume command of Maxwell Field and the Tactical School, succeeding Col. John F. Curry, whose four-year term of duty as commandant expires.

Col. Curry, who will report for duty as a student in the Army War College at Washington, is credited with a large share of the School's growth and expansion during the four years that he has been at Maxwell Field. During his four years as commandant, approximately $5,000,000 has been spent in providing a permanent home for the Tactical School, and the personnel has been increased from less than 250 officers and men, to 400 enlisted men and 100 officers.

High ranking officers of the Air Corps, the majority of them seasoned veterans in flying, are sent to the School to learn the most advanced technique of tactical operations, and the fame of the school has spread all over the nation.

In this year's graduating class will be three foreign officers—two from Turkey and one from Mexico. Through a special exchange of courtesy between the United States and foreign governments, Capt. Mustafa Ziya and Capt. Mohmet Tevfik, officers of the Turkish Army, and Lieut. Javier Gonzalez, of the Mexican Air Corps, entered the School last fall and will complete the course June 4.

Several members of the recently-reorganized Air Corps Board, of which Col. William O. Ryan, of Maxwell Field is president, have been ordered to Maxwell Field, designated as headquarters for the Board. Lieut.-Col. Jacob H. Rudolph, who has been a student in the Army War College, will report to Maxwell Field not later than June 30, 1935, to become director of the Board. Major Leslie MacDill will leave his post at the Naval War College, Newport, Rhode Island, to become a member of the board.

The Air Corps Board is a permanent group of officers who study ways and means to improve the efficiency of the Air Corps, both as to technical advances and personnel improvement.

The following officers have been ordered to report to the designated posts of duty upon completion of the Air Corps Tactical School term on June 4, 1935:

Lieut. Shiffeld Edwards, to Fort Sill, Okla.; Capt. William N. Amis, to Barksdale Field, Shreveport, La.; Capt. Clarence E. Crumrine, to Kelly Field; Capt. Horace S. Kenyon, to Brooks Field; Capt Lester J. Maitland, (Dole flight participant) to Barksdale Field; Capt. Milo McCune, Barksdale, and Lieut. Robert W. Douglass, Jr., to Barksdale.

Among the new students ordered to report to Maxwell Field before September 1, 1935, are:

Capt. Edgar P. Sorenson, Kelly Field; Capt. Joseph H. Davidson, Barksdale; Lieut. Nathan F. Twining, Barksdale; Maj. John K. Cannon, Randolph Field; Maj. Lewis A. Dayton, Kelly Field; Capt. Carlisle I. Ferris, Kelly Field; Capt. Augustine F. Shea, Kelly Field; Capt. Orvil A. Anderson, Kelly Field, and Capt. Leon A. Sharon, Randolph Field.

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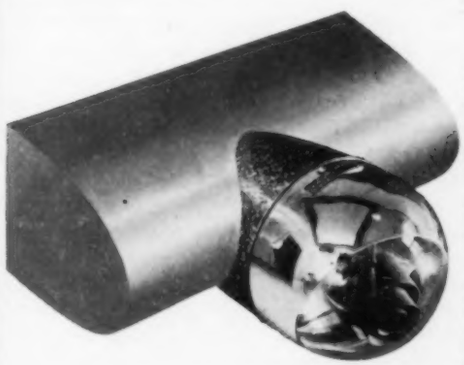

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For Too Many Years we have all awaited a "break" in the Landing Light situation. After Three Years of exhaustive experimentation we have a light to be proud of! A Real Honest-To-Goodness Light . . . a Quality Product . . . with the Price DOWN Where it Belongs.
S'mple to install . . . Light in Weight . . . NO MOVING PARTS to Fail at CRITICAL MOMENTS . . . and the light is always WHERE you want it WHEN you want it.
The REFLECTORS: 6" diameter, Mirror-finished, mounted in the Nose-Section at the proper angle for wide adjustment. The LENS are Spherical, and conform to the curvature of the Nose-Section. The Beam-Control Unit is sturdy and accurate. The NOSE SECTION is a One-Piece Spinning, strong and sturdy; Chromium-Plated and Polished; Full Rotatable for Maximum Beam Adjustment. LAMPS are FURNISHED WITH THE LIGHTS. Five Lamp sizes available, to fit your own desires and pocketbook. The REAR CASE is a Strong, One-Piece Aluminum Spinning. For INTERIOR Lights it is cylindrical, and has a strong steel mounting bracket, with Spar-Depth Adjustment on the rear end. For EXTERIOR lights the case is a neat Streamline shape, finished in Black Crystalline Instrument Lacquer. Twin Hanging Brackets are rigidly riveted on the exterior cases.

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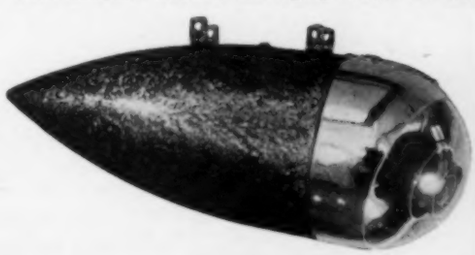
Type	Candlepower and Voltage	Per Pair Interior	Exterior
No. 650—	50 CP. 6 or 12 Volts	$45.00	$50.00
No. 6100—	100 CP. 12 Volts	50.00	55.00
No. 6200—	200 CP. 12 Volts 6 Amp drain	80.00	85.00
No. 6315—	315 CP. 12 Volts 15 Amp drain	80.00	85.00
No. 6258—	528 CP. 12 Volts 20 Amp drain	90.00	95.00



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WEIGHT: All other types only THREE POUNDS PER LIGHT.

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Murfreesboro, Tenn.

American Airlines at Sky Harbor announced two schedule changes this past month. The afternoon plane from Cleveland now arrives at 4:48 o'clock, leaving Cleveland at 1:35 o'clock. The Cleveland-bound plane now leaves Sky Harbor at 12:40 p. m., arriving in Cleveland at 6:00 o'clock.

American Airlines have just inaugurated sleeper plane schedules nightly between Nashville and the East. Nashville now has the Condor sleeper plane service in addition to the speedy day schedules of the "Southerner" using the Douglas planes which are routed directly through Washington and New York over the Southern route.

"The new sleeper service is proving very popular and travelers have shown a marked preference for this type of air transportation in night flying," stated Paul Stanley, city traffic manager.

On April 28 three planes of the 105th Observation Squadron will take off from Sky Harbor on a flying visit to twenty-six towns in Tennessee. Every city having an airport will be visited if the weather permits. The planes will fly separately, each covering one of the three divisions of the state. One of the objects of the tour is to inspect the airports, many of which have been undergoing construction by the FERA.

On May 1st the entire 105th Aero Squadron will fly to Indianapolis for the national gathering on behalf of the Legion round-up. While there they will join with the planes of the 113th Squadron at Stout Field.

The Tennessee squadron will be led by Adjutant-General I. H. Bellew, Colonel Herbert Fox, and Major Walter Williams.

Nashville, Tenn.

At McConnell Field Louis Gasser of the Nashville Flying Service and Bill Lindsay are planning several air circuses for this spring and summer.

Frank "Chili" Miller, well-known flying instructor, is organizing a flying club where members would get instruction at a very low cost. Under Miller's plan this will be arranged through an initiation fee, small monthly dues, and a bare cost expense for all flying. Tentative plans call for the club to get under way this month.

Oklahoma City. Okla.

Walt Beech in town selling Beechcrafts. During a sales conference a prospect turned down a generous draught. Walt commented that he thought it a good idea. "Yea," retorted the prospect, "And it saves liquor, too."

One of the new Electras, now in service over Braniff's Texas Route, visited the city last month and during the stop, carried the usual number of local dignitaries for flights over the city. We wonder if Frank Phillips and the rest of the drillers who operate over on the East side of town, have ever flown over the section since operations are well under way. Perhaps a flight over the area would be enlightening.

Merril Morgan recently joined the select ranks of international airplane salesmen when he sold his J-6 Bellanca Pacemaker to the chief of the Santo Domingo air force. Local prediction is that the finances derived from the sale will form another house of Morgan, as Merril has already established foreign connections.

Bennie Turner, aviation editor for the *Daily Oklahoman* and *Times* has been commuting between our city and New York for the past month. Bennie's job was to handle the New York releases, we not only provide the pilots of Oklahoma, but the news-hawks as well.

News emanating from the Nuckells Air Dock assures us that the Lockheed Orion, "Sheridan" which has been under complete overhaul orders, will be in the air in time to take F. C. Hall to the Kentucky Derby. It's really a tricky looking outfit with its new color scheme of purple and white. Roy Hunt, the Skipper, may break out any day now, bathed in Cologne, with a flower in his lapel, and a derby hat!

Pampa, Tex.

Wesley Lewis will test his newly overhauled and recovered Hisso Swallow some time this week. That is, if the wind ever calms down to about forty miles or less and the dust subsides to give at least a half mile of "viz."

George Walters has the Warner back in his T. P. Swallow now and is adding the hours under the able guidance of instructor Frank Shaw. George will be another of Pampa's twelve solo students. George says, "T-t-t-them t-t-t-ail s-s-spins remind me of the time I got caught in my dad's T-t-threshing m-m-machine."

Visiting pilots to Pampa during the past month have been: Art Oakley in his Stinson from Ardmore, Russell Reeves in the Olson Drilling Company's new Beechcraft, Clare Kingsbury in Mr. Dye's new Stinson from Tulsa, Ewing in his Robin from Oklahoma City, Ed Carr from Los Angeles and Lieut. Thompson from Fort Riley in a big Douglas.

Keenan Bros. Flying Service are experiencing a nice overhaul and repair business. They are at present overhauling a Mohawk Pinto belonging to Bobby Hoover of Canadian, a Cessna monoplane from Elk City and are assembling and rigging up Wes Lewis' Swallow. They have a J-5 Ryan and a Travelair ready to go into the shop as soon as they get a little room.

Dee Graham thinks that business has been fair considering the dust storms. Nine flying days in April were enough to do twenty-one hundred and fifty miles in cross countries, thirteen hours of student instruction and carry a nice bunch of short hop passengers for the month.

Carl Benefiel's slow automobile prevented executing his duty as Fox Movietone photographer, by being a few minutes late in getting him and his equipment out to the field in time for Dee Graham and his Stinson to get him up for the news shot of the year, a dust storm of extreme density advancing to the south into a clear and calm. Dee and three passengers flew out to meet it. Impossible to describe, Jimmy Durante would be closest with, Magnificent, Collosal and Stupendous. They got back, landed and put the ship in the hangar just about a minute before it hit. Inky blackness like being deep down in a mine. It was darker than any night that yours truly has ever seen, yet it was day time and three minutes before it had been "clear, unlimited, unlimited."

George Christopher has reinstalled the Challenger in his Commandaire and is polishing up on his spins and spot landings so that he can apply for his Limited Commercial License this month.

Panhandle Airmotive Service has been organized by Dee Graham and Joe Roche. They have built a three ship hangar with George Adams as chief mechanic. Panhandle Airmotive operates in conjunction with Panhandle Flying Service which operates a charter, school and sales service. The Airmotive is turning out some nice repair and overhaul work and is getting ready for a lot more.

Roswell, N. Mex.

Flying has been badly curtailed during the past month in this vicinity, due to high winds and "muchas" dust from Kansas, Oklahoma and Colorado, which have kept visability down to zero most of the time, to say nothing of their effect on motors. However, now that some moisture has fallen in the "dust bowl" of the southwest, the weather has cleared and for the most part is remaining well adapted to flying activities and we hope to make up for all the "hangar flying" we have had to do in the weeks just passed.

"Cal" Barnett, our field manager, managed, despite the dirt and winds, to work in a cross-country or two. One was to Santa Fe and return and the other a nice little jaunt down to Dallas.

We have on the field now a Monocoupe, which Barnett purchased down at Fort Stockton, on which he hopes to carry some four or five students thru to their Private ticket. This is a real little airplane and performs as well or better than any other light airplane we have ever had on the field.

The last few days the D. of C. boys were here with their Stinson, checking the airways maps, their activities were badly hampered by wind and dirt. They managed to get thru, however, and pulled freight for Pueblo. From reports reaching us from there, we gather the most part of their flying during the past three weeks has been done in the hangar.

The writer has made several trips to El Paso recently --by car—and was there last week when some of the boys came to grief. It is regretted these accidents had to happen. Such things do not benefit the cause of aviation.

Reports have reached us, via the old "grape-vine" route, that Riley Allison has purchased a Fairchild. Viva Riley! He has a real airplane and we hope he has the best of luck with it.

St. Louis, Mo.

According to an April announcement, a large block of stock of the Lambert Aircraft Corporation has been purchased from J. D. Wooster Lambert by Clare W. Bunch, Monocoupe General Manager.

Wiley Post of Bartlesville, Okla., 'round-the-world flyer, has purchased a small amphibian plane from the Curtiss-Wright Airplane Co., St. Louis, which he will use on a hunting trip to Alaska.

The plane has an open cockpit, is powered with a Lambert engine and is equipped with retractable skis for snow landing. Post told Gregory J. Brandeweide, vice-president of the Curtiss-Wright Co. he will take a short vacation and hunting trip and wants to use the plane to "hop around with."

Flying his Waco plane, A. M. Riggs of Kennett, Mo., young business man, is able to keep in close touch with the large wholesale centers and the latest trends in marketing and merchandising.

Riggs is secretary-treasurer of the Riggs Sales Co., and the Shelton-Riggs Hardware Co., which operate electric appliance and hardware houses in Caruthersville, Kennett, Portageville, Steele, Hornersville and Cardwell, Mo.

Kennett has a modern airport and four airplanes are owned by the local residents, Riggs said while he was in St. Louis on a business trip. He usually makes the 200-mile flight in two hours and makes his landings at the airport of Parks Air College, East St. Louis, Ill.

George Hayes, transport pilot, and formerly employed by the American Airways and more recently by a company operating planes between Dallas and Galveston, Texas, was found dead in Valhalla Cemetery, St. Louis. He had shot himself in the right temple with an automatic pistol, found near the body. Two notes written by him, and addressed to his wife and Mr. Hayes' mother, Mrs. W. H. Hayes, indicated his intention to take his life. He was unemployed and had been despondent over financial affairs, his wife said. He was 31 years old.

Santa Rosa, N. M.

H. B. "Harv" Taylor has put a new undercarriage on his little parasol type monoplane, and it is really neat. It is very similar to the Monocoupe landing gear. The slickest thing on it is the brake arrangement on the 14 x 3 disc wheels. The drums consist of old fan belt pulleys bolted to the inner disc for brake drums, and the rest is a conventional brake arrangement. That guy Taylor is really good at this light plane racket.

Buzz Hershfield has recently been appointed Colonel on Governor Clyde Tingley's staff, and in this capacity will be in charge of all aviation for the State of New Mexico. Tough on Col. Roscoe Turner.

Harry Royster of the Green Oil Company has opened an office in Albuquerque and is now burning up our local skies in a nice new Fairchild. Incidentally, Royster is an old timer, has a gold caterpillar on his coat 'n everything.

Chalkie Breece is popping around the ozone in his Challenger Timm. Speaking of Timms, that guy Wally Timm is really going to have something in his new bimotored job.

Cabra Springs Oil and Gas Company announce the sale of their Kinner-powered Curtiss Airsedan to W. Arnett Speer of San Diego. At present they are figuring on an eight place Travelair or a Lockheed Vega.

Loyd Bible of Las Vegas is contemplating the purchase of a new two place job, providing he can get a good trade on his Hisso Lincoln Paige. It looks favorable for a Lambert Monocoupe according to the latest gossip.

The city of Las Vegas is trying to get a Federal loan to build a large hangar and further equip the field as a first class airport. The addition of a gas pit will be a real help. Incidentally, the trout fishing is really good in them thar hills.

Bill Cutler is plastering New Mexico with new Fairchilds, and believe me, he deserves a lot of sales, a good egg, this Cutter.

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Montgomery, Alabama

Walt Schommer, Frank Speakman and Jimmy Oxnard are still holding down the Albuquerque Airport. Those fellows are the ones that make you realize the West is where the handshake is a little stronger.

Col. Buzz Hershfield has just returned from the coast and is quite enthusiastic over Ross Hadley's Jenny. Ross has bought an old Jenny and is giving it new wings, motor and a general going over in his garage with the help of Al Lary, Wilbur Shaw of race car fame, and Jack Reimer, all six foot four of him.

Ralph Carter of the Hollywood Plaza Hotel and war time flyer, will visit our Colonel to do a little fishing at the Cabra Springs Oil Company's place. Wonder of the Colonel will offer some mint juleps. Yowsah!

Topeka, Kansas

The Topeka Flying Service has just completed a major overhaul on the Cirrus motor in their Great Lakes and have had the cowling all repaired and refinished and it is one of the outstanding good-looking airplanes on our airport.

Student activity is increasing and they are looking forward to keeping several trainers busy for the next several months.

The Topeka Municipal Airport has been having many visitors recently. Some of them were:

Major M. D. Stone of the Denver National Guard in a Thomas Morse of the Colorado National Guard; Mr. Dick Farrar, flying an Aeronca; Mr. G. Thies in a Travelair J-5; Mr. Hinshaw of the Shell Petroleum Company was here in a Stinson and Mr. L. Cogul with an OX Robin.

Tyler, Texas

The Municipal Airport has been extended to 3,000 feet in all directions. Two runways, 3,000 x 300 North-South and East-West are surfaced with iron car gravel which affords an all weather surface. Complete boundary, approach, obstruction lights, and a standard revolving beacon on a fifty-one foot tower, as well as an electric wind tee are now a part of the modern improvements. Service is available twenty-four hours of the day.

Weather service by radio at all times via radio telephone which is now under construction, is expected by May 1st. Call letters will be KNBT, operating on 3105 K. C., or other frequencies at request.

The Junior Chamber of Commerce has installed atop the Peoples National Bank Building (5½ miles east of airport) a twenty-four inch red rotating beacon which makes two revolutions per minute, and a twenty-four inch clear directional beacon which points to the air port.

O. C. Palmer, who has been flying over eight years and holds a Transport License and First Class Commercial Radio Operators License, is constructing the Radio Telephone. The service will be open to both commercial and military planes. After May 1st, pilots may tune in 278 kilocycles, or if equipped with transmitter, the station may be called for necessary data.

Tyler is now a regular stop on the Dallas-Atlanta air mail route 24, which is operated by Delta Air Corporation.

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RUSSELL Lobe seat pack chute, never been jumped, good as new, time for repacking now. Private owned. $65.00. M. F. Dagley, 1104 Ave. J, Lubbock, Texas.

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Martin to Buenos Aires

Rex Martin, assistant director of the Bureau of Air Commerce, has been appointed as aviation adviser to the American delegation to the Pan American Commercial Conference to be held in Buenos Aires, Argentina, May 26. He will leave Miami on May 9 by plane and will arrive in the Argentine capital a week later in time to participate in the preliminary sessions.

Chief among the subjects of an aeronautical nature to be considered are port facilities for the entry, loading and unloading and departure of aircraft; the reduction of customs duties and improvement of aerial communications including beacon lights, and radio beacon and communication stations as a further aid to air navigation.

Bellanca Cargo Aircruiser to Canada

The Bellanca Aircraft Corporation recently delivered to Mackenzie Air Service, Lt., of Edmonton, Canada, its latest version of the Airbus and air cruiser line, known as the 1935 Model 66-70 Bellanca Cargo Aircruiser.

Features of the new plane include a payload in excess of two tons with a cruising radius of 550 miles; a maximum speed of 160 m.p.h.; a cruising speed of 154 m.p.h. at 12,000 feet with 75% power; tank capacity for over 1,000 miles range; and the use of spot-welded stainless steel ribs in the main wing panels and in the stabilizer, especially developed for the varied Canadian climate.

Aircraft 1935

(Continued from page 17)

hand crank, one electric motor and a gear box to divert the driving power to the landing gear, flaps or tip floats, one at a time, when and as required. First, it was necessary to devise clutches which could be engaged or disengaged at any position of the driving and driven member in the gear box. And, secondly, the electrical hook-up had to be worked out.

The drive system for the landing gear mechanism consists of the aforementioned spindle with trunnion, to which the retracting trolley is attached. The spindle is turned through a drive shaft system from the respective gear in the master gear box which is engaged by operation of the clutch selector level. When the electric motor is switched on, the drive shafts and spindles turn, the trunnion moves the shock strut trolley in-or-outboards as the case may be for retracting or lowering of the landing gear. When the trolley reaches a point close to the extreme position, a limit switch is engaged by the trolley, the electric current is interrupted, the spindle and trolley stop.

The electrical contact system had to be designed so that, with changing the position of the selector lever, for instance, from landing gear to flaps, the interconnection of the travel limit switches was also changed to suit. This constituted a nice problem because of the rather limited space and because no commercially available switches could be used for the purpose. The electric selector mechanism has been called the "Master Mind."

Nacelle

The nacelle structure is made of welded chrome-molybdenum steel tubing and is attached to the wing center section at three points—one at the rear spar and two at the front spar of the wing center section. The engine is supported by means of rubber bushings which allow only slight movements of the engine in the direction of engine torque and no movements in the fore and aft direction. A complete NACA type cowl is used, which blends to the rear with the nacelle cowling, the shape of which has been determined by a long series of wing tunnel tests. The rear portion of the nacelle cowling can be used as storage space for baggage or equipment. The front part of the cowling houses the oil tank, oil cooler, engine controls and accessories.

Hull Interior

The first compartment at the bow of the hull is used for storage of anchor and other marine equipment. The second compartment is used for storage of baggage, mail or other cargo; it is accessible from the deck through a hatch and a watertight door leads into the next compartment to the rear, which is the pilot's cockpit.

Dual controls are provided with engine controls and electrical switches arranged conveniently at the cockpit roof. The instruments for flight and engine are grouped on rubber mounted panels. The selecting lever, electric switch and hand crank for the retracting mechanism gear box are installed between and above the two pilots' seats. Hatches are provided above the pilots' seats, which, when opened, can be used as platforms to stand upon when work on the engine is to be done.

From the pilots' cockpit a watertight door leads to the rear into the center cabin, which has four adjustable chairs, mounted in rubber. A shelf near the cabin ceiling on the left side is used for storage of life preservers, the opposite shelf can be used for storage of parcels. An emergency exit hatch is provided on the ceiling of this cabin, leading the top of the wing center section. A watertight door leads to the rear in another cabin compartment, which is also equipped with four chairs. Entrance and exit to the cabin is through a hatch door to the rear of the second cabin, with a fixed stairway inside the cabin and a folding ladder on the outside of the plane.

The space opposite the inside stairway can be utilized for storage of baggage. To the rear of the cabin is a toilet compartment with wash basin, mirror, etc.

Each cabin has four large fixed windows of shatterproof glass, and two electric dome lights. Ventilation and heating are provided by ducts which run alongside the upper part of the cabin side walls.

The cabins are soundproofed in accordance with the latest practices of this new art.

Specifications

Engine	Hornet S4D1, 650 hp. at 2,050 r.p.m. at 3,000 ft.
Span	56 ft.
Wing area	485 sq. ft.
Ailerons	37 sq. ft.
Stabilizer	45 sq. ft.
Elevator	35 sq. ft.
Fin	34.4 sq. ft.
Rudder	24.4 sq. ft.
Flaps	64 sq. ft.
Weight empty	5,500 lbs.
Crew (2)	340 lbs.
Fuel (170 gals.)	1,020 lbs.
Oil (15 gals.)	112 lbs.
Marine equipment	83 lbs.
Miscellaneous equipment	100 lbs.
Payload	2,445 lbs.
Useful load	4,100 lbs.
Gross weight	9,600 lbs.
Useful load in percent of gross weight	42.7%
Wing loading	19.78 lbs./sq. ft.
Power loading (650 hp.)	14.76 lbs. /hp.
Maximum speed sea level	179 m.p.h.
Maximum speed 3,000 ft. altitude	184 m.p.h.
Cruising speed at 3,000 ft. altitude at 65% of power	158 m.p.h.
Rate of climb at sea level	900 ft./min.
Absolute ceiling	20,000 ft.
Service ceiling	18,000 ft.
Stalling speed without flaps, sea level	68 m.p.h.
Stalling speed with flaps, sea level	58 m.p.h.
Range at cruising speed	750 miles
Take-off time on land	16 sec.
Take-off time on water	36 sec.

\+ + +

Barnaby Accepts N.A.A. Office

At the invitation of William Gibbs McAdoo, president of the National Aeronautic Association, Commander Ralph S. Barnaby has accepted the office of N.A.A. Contest Representative for the Fourth District for 1935. The Fourth District includes Alabama, Florida, Georgia, Louisiana, Mississippi, North and South Carolina, and Tennessee.

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